UNCLASSIFIED

AD 4 2 6 4 8 3

DEFENSE DOCUMENTATION CENTER

FOR

SCIENTIFIC AND TECHNICAL INFORMATION

CAMERON STATION, ALEXANDRIA, VIRGINIA



UNCLASSIFIED

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

TABLE OF THE WAITING TIME DISTRIBUTION FOR THE CONSTANT SERVICE QUEUE (M/D/1)

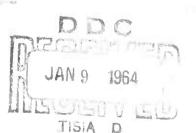
CATALOGED BY DEC

by

Robert M. Oliver
Operations Research Center
University of California, Berkeley

OPERATIONS RESEARCH CENTER

INSTITUTE OF ENGINEERING RESEARCH



UNIVERSITY OF CALIFORNIA-BERKELEY

TABLE OF THE WAITING TIME DISTRIBUTION FOR THE CONSTANT SERVICE QUEUE (M/D/1)

by

Robert M. Oliver Operations Research Center University of California, Berkeley

30 September 1963

ORC 63-12 (RR)

This research has been partially supported by the Office of Naval Research under Contract Nonr-222(83) and the National Science Foundation under Contract G 21034 with the University of California. Reproduction in whole or in part is permitted for any purpose of the United States Government.

TABLE OF THE WAITING TIME DISTRIBUTION FOR THE CONSTANT SERVICE QUEUE (M/D/1)

1. Introduction

The single-channel constant service queue with Poisson arrivals represents one of a variety of mathematical models where customers demand service at a single facility. In this model it is assumed that the times between arrivals are exponentially distributed random variables and that the service or holding time of each customer is a constant Δ ; hence, a completion of service occurs every Δ time units when there are customers in the service facility. Tables of the probability distribution that the wait in queue is less than or equal to a given value have been computed.

There is an extensive list of publications covering the general theory of queues and the special cases of constant service times. The reader is referred to original papers on the constant service queue by Crommelin⁽¹⁾, Erlang⁽²⁾, Fry⁽³⁾, Khintchine⁽⁴⁾, and Pollaczek⁽⁵⁾.

2. Theoretical Considerations

Denote the wait (in queue) of two successive arrivals into a single service facility by the random variables x and y. Arrivals are served one at a time (in order of arrival) at constant intervals Δ when the service facility is busy; i.e., when there are a positive number of customers in the service facility. If the service facility is empty, an arrival has no wait in queue and immediately begins his constant service time. If the time between arrival of the first and second customer exceeds the wait in queue plus constant service time of the

first customer, $x + \Delta$, the wait of the second customer is y = 0. Otherwise, the wait of the second customer is $y = x + \Delta - u$, where u is the random inter-arrival time. The distribution of y is the distribution of the positive part of $x + \Delta - u$,

$$y = Max (0; x + \Delta - u).$$
 $u \ge 0$ (1)

If we assume that u has an average value λ^{-1} , and that, in equilibrium, Pr $\{x \le t\} = Pr \ \{y \le t\} = W(t)$, we obtain

$$W(t) = \int_{0}^{\infty} \lambda_{e}^{-\lambda u} W(t + u - \Delta) du \qquad t \ge 0$$

$$W(t) = 0 \qquad t < 0$$
(2)

Differentiation with respect to t and an integration by parts gives W(t) as the solution of the differential-difference equation,

$$\frac{dW}{dt} = \lambda [W(t) - W(t - \Delta)] . \qquad t > 0$$
 (3)

In terms of its Laplace transform,

$$W^{*}(s) = \int_{0}^{\infty} e^{-st} W(t)dt = \frac{W(0^{+})}{s - \lambda + \lambda e^{-s\Delta}}$$
(4)

The boundary condition at t=0 is obtained by requiring that W(t) be an honest probability distribution; i.e., that $W(t) \to 1$ as $t \to \infty$ and that

$$\lim_{s \to 0} s W^*(s) = 1 \tag{5}$$

From this limit we obtain the probability that a random arrival does not have to wait,

$$W(0^+) = 1 - \rho \tag{6}$$

where $\rho = \lambda \Delta$ is called the fractional utilization of the service system; the requirement for statistical equilibrium is that $\rho < 1$; i.e., that average arrival rate be less than the average service rate.

Inversion of the Laplace transform in (4) can be made in several ways. A partial fraction expansion of $W^*(s)$ gives

$$W(t) = 1 - \sum_{k} \alpha_{k}^{\beta_{k}t}$$
 (7)

where β_k (Re $\beta_k <$ 0) are the distinct roots of

$$s - \lambda + \lambda e^{-s\Delta} = 0 \tag{8}$$

and

$$\alpha_{k} = (1 - \rho) (\rho \epsilon^{-\beta} k^{\Delta} - 1)^{-1}$$

An assymptotic expansion for Wc(t) = 1 - W(t) can also be obtained in terms of the larger real root, z_0 , of

$$ze^{-z} = \rho e^{-p} \tag{9}$$

By substituting $z = \rho - s\Delta$ into Equation (4) we obtain

$$W^*(z) = \frac{\Delta (1 - \rho)e^{-z}}{\rho \epsilon^{-\rho} - ze^{-z}}$$

We now make use of the Laplace transform pairs

$$f(t) \longleftrightarrow f^{*}(s)$$

$$b^{-1}e^{-at/b}f(t/b) \longleftrightarrow f^{*}(a+bs)$$
(10)

to obtain an assymptotic expansion for the probability $W_{\rm c}(t)$ that the delay exceeds $\,t\,$;

$$W_{c}(t) = 1 - W(t) \approx \frac{(1 - \rho)e^{(\rho - z_{o})t/\Delta}}{z_{o} - 1}$$
 (11)

Since $z_0>1$ for $\rho<1$ the exponent is negative. This expression is surprisingly accurate for small values of t and ρ although our computing experience indicates that for values of $\rho>0.90$ the root z_0 must be accurate to twice the number of decimals desired in $W_c(t)$. One can also expand the denominator of Equation (4) in powers of $\lambda e^{-s\Delta}/s - \lambda$ to get

$$\mathbf{W(t)} = (1 - \rho) e^{\lambda t} \sum_{j=0}^{\lfloor t/\Delta \rfloor} \frac{(j\rho - \lambda t)^{j}}{j^{\frac{1}{\rho}}} e^{-j\rho}$$
 (12)

where [x] denotes the integral part of x . Write $[t/\Delta] = n$, $(t/\Delta - [t/\Delta]) = 0 < 1$ and $\alpha = \rho e^{-\rho}$. In Equation (12) t is replaced by $n\Delta + \theta$ so that

$$W(t) = W_{n}(\theta) = (1 - \rho)e^{\rho(n+\theta)} \sum_{j=0}^{n} \frac{(\alpha(j-n-\theta))^{j}}{j!}$$
(13)

3. A Computing Algorithm

For integer n and $0 \le \theta < 1$ we observe that both Equation (3) and (13) can be rewritten in the form

$$\frac{dW_{O}}{d\Theta} = \rho W_{O}(\Theta) \quad ; \quad W_{O}(O^{+}) = 1 - \rho$$

$$\frac{dW}{d\Theta} = \rho [W_{n}(\Theta) - W_{n-1}(\Theta)]$$
(14)

An integrating factor of Equation (14) is $e^{-\rho \theta}$. This can be used to show that the n^{th} derivative of $e^{-\rho \theta}$ $W_n(\theta)$ is

$$\frac{d^{n}}{d\theta^{n}} \left[e^{-\rho \theta} W_{n}(\theta) \right] = (1 - \rho) (-\rho)^{n}$$
 (15)

and hence that $e^{-\rho\theta}W_n(\theta)$ can be written as an n^{th} order polynomial in θ . In other words, $W_n(\theta)$ is of the form $e^{\rho\theta}[A_n\theta^n+A_{n-1}\theta^{n-1}+\dots A_n]$ where A_j is independent of θ .

Equation (15) suggests a computing procedure which has been used to calculate W(t). Define polynomials $C_n(k)$ independent of θ such that

$$W_{n}(\Theta) = e^{\rho\Theta} \sum_{k=0}^{n} C_{n}^{(k)} (\rho\Theta)^{k}. \qquad (16)$$

We observe that $W_n(1) = W_{n+1}(0)$ and a binomial expansion of (13) in powers of θ gives

$$C_{n+1}^{(k)} = -\frac{1}{k} C_{n}^{(k-1)}$$

$$C_{n+1}^{(o)} = e^{\rho} \sum_{k=0}^{n} C_{n}^{(k)} \rho^{k}$$
(17)

subject to the boundary condition $C_0^{(o)} = 1 - \rho$. The procedure of (16) and (17) has the desirable feature that the waiting time distribution for arguments equal to non-integral multiples of the service time can be expressed in terms of the function $W_{n+1}(o) = C_{n+1}^{(o)}$ evaluated at integral multiples of the constant service time.

The tables of the waiting time distribution are organized so that

columns correspond to values of utilization $0.00 \rightarrow 0.99$ (0.01) and rows correspond to values of the argument expressed as a multiple of the constant service time.

BIBLIOGRAPHY

- Crommelin, C. D., "Delay Probability Formulae When the Holding Times are Constant," <u>Post Office Electrical</u>
 Engineers Journal, v. 25, 1932, pp. 41-50.
- Brockmeyer, E., H. L. Halstrom, and A. Jensen, "The Life Works of A. K. Erlang," <u>Translation</u>, Dan. Acad. Tech. Sci. No. 2, 1948.
- Fry, Thornton, C., Probability and Its Engineering Uses,
 Princeton, N. J., D. Van Nostrand, 1928.
- 4. Khintchine, A. Y., "Mathematical Methods in the Theory of Queuing; Translation, "Griffin's Statistical Monograph No. 7, New York: Hafner, 1960.
- Pollaczek, Felix, "Problemes Stochastiques," Memorial des Sciences Mathematiques No. 136, Gauthier-Villars, Paris, 1957.

			PROBAB	ILITY OF W	AIT LESS T	AN OR EQUA	AL TO T			
T	•00	•01	0.2		UTILIZ			_	_	
		•01	• 02	•03	•04	•05	• 06	•07	•08	•09
•00	1.0000	• 9900	•9800	.9700	.9600	• 9500	.9400	.9300	.9200	.910
•10		• 9910	•9820	• 9729	.9638	.9548	.9457	.9365	.9274	.918
•20		• 9920	•9839	.9758	•9677	•9595	.9513	. 9431	.9348	.926
•30		.9930	•9859	•9788	•9716	.9644	.9571	.9497	.9423	. 934
•40		• 9 9 4 0	•9879	.9817	•9755	•9692	•9628	•9564	.9499	. 943
.50		•9950	•9898	•9847	.9794	.9740	•9886	.9631	05.75	• 951
.60		.9960	•9918	.9876	9833	•9789	•9745	•9699	•9575 •9652	• 960
•70		.9970	• 9938	• 99 06	.9873	•9838	.9803	•9767	.9730	•969
-80		9980	•9958	.9936	.9912	•9888	•9862	•9836	.9808	977
•90		•9990	.097B	.9965	9952	•9937	.9922	9905	.9887	986
.00		9999	•9998	0005	•9992	0007	0001	0074	0011	205
.10		• 9 777	•9998	•9995 •9 99 6	•9993	•9987 •9989	•9981 •9985	•9974 •9979	•9966 •9972	•995 •996
• 20			9999	9997	9995	•9991	•9988	9983	•9977	997
.30			• > > > >	9998	9996	•9993	•9990	•9987	•9982	997
•40				•9998	9997	•9995				.998
• • •				• 9990	• 2271	• 7770	•9993	•9990	•9986	• 9 7 0
•50				•9999	•9998	• 9996	•9995	•9993	.9990	.998
•60						•9998	•9996	•9995	.9993	•999
•70						•9998	o99 9 8	•9997	.9995	• 999
80						•9999	•9999	•9998	•9997	• 999
•90								• 9999	•9998	.999
.00									.9999	. 999
1										
1										

T	l									
	•10	•11	•12	•13	UTILIZ.	ATION •15	•16	•17	•18	•19
•00	•9000	•8900	.8800	.8700	.8600	.8500	.8400	.8300		
.10	•9090	. 8998	.8906	.8814	.8721	• 8628	.8535	•8442	•8200 •8349	•810 •825
.20	•9182	9098	•9014	8929	.8844	.8759	.8673	8587	·8501	·841
.30	.9274	•9199	.9123	9046	.8969	.8891	.8813	.8734	.8655	857
.40	•9367	•9300	.9233	.9164	9095	.9026	.8955	.8884	.8812	.874
•50	• 9461	•9403	.9344	.9284	.9224	•9162	•9100	.9036	8072	
.60	9557	•9507	9457	9406	9354	•9300	•9246	•9191	•8972 •9135	•890 •907
.70	9653	•9612	9571	9529	9485	•9441	9396	•9349	•9301	925
.80	•9750	•9719	9687	9654	• 9619	9584	9547	•9509	•9470	943
•90	.9848	- 9826	-9804	.9780	9755	9729	.9701	•9672	.9642	•961
.00	• 99 47	• 9935	•9922	0000		0074	0057			
.10	9956	•9946	•9922	•9908 •9923	•9892 •9910	•9876 •9895	•9857 •9880	•9838 •9863	•9817 •9845	•979
•20	•9964	9956	9947	9937	9926	•9914	•9900			• 982
.30	9971	9965	9957	.9949	9940	9930	•9919	•9886 •9907	•9871	• 985
•40	.9978	9973	•9967	9960	9953	•9945	•9936		•9895	•988
		•,,,,	.,,,,,	. 9960	• 9903	.9945	• 99 36	•9926	•9916	• 990
•50	•9983	•9979	•9975	.9970	.9964	•9958	•9951	•9943	.9934	•992
•60	•9988	•9985	.9982	•9978	• 9974	•9969	•9963	•9957	•9950	•994
•70	•9992	• 9990	•9987	.9985	•9981	•9978	•9973	•9969	•9964	•995
.80	•9995	•9994	9992	.9990	•9987	• 9985	•9982	.9978	•9974	•997
•90	•9997	• 9996	•9995	•9993	•9992	•9990	.9987	•9985	•9982	•997
•00	.9998	•9997	•9996	.9995	.9994	•9992	•9991	•9989	•9986	•998
-10	•9998	•9998	•9997	.9996 .	.9995	.9994	.9993	9991	.9989	998
•20	•9999	• 9998	•9998	•9997	•9996	•9995	•9994	.9993	•9991	.999
•30		•9999	•9998	.9998	•9997	•9997	•9996	9995	.9993	999
•40			•9999	•9998	•9998	•9997	.9997	9996	.9995	.999
.50				•9999	• 9999	•9998	.9998	•9997	•9996	•999
.50						9999	.9998	9998	9997	999
.70							9999	9998	9998	999
.80							-	9999	9998	999
•90								•	•9999	999
•00										.999
										• , , ,
1										
			•							
ı										
1										
1										

.8000 .8162 .8326 .8495 .8666	.7900 .8068 .8239 .8414	• 7800 • 7974 • 8151 • 8332	.7700 .7879 .8062	.7600 .7785 .7974	•25 •7500 •7690	•26 •7400 •7595	•27 •7300 •7500	• 28 • 7200 • 7404	• 71 0 • 73 0
•8162 •8326 •8495 •8666	•8068 •8239 •8414	•7974 •8151	.7879	.7785	•7690				
•8326 •8495 •8666	•8239 •8414	.8151			•7690				
•8495 •8656	.8414		.8062						
• 8666		.8332			• 7885	•7795	•7705		
	. 0502		.8250	.8167	•8084	.8000	•7916	•7615	• 752
. 9941	• 5 2 9 2	·9518	.8442	.8366	• 8289	•8211	•9133	•7831 •8053	•774 •797
•0041	•8775	.8707	.8638	• 9569	• 9499	2 27			
•9020	8961	.8901	.8839	.8777	• 8714	• 8427	•8355	.8282	•820
.9202	•9151	9099	•9045	• 9990	•8934	.8649	• 9584	.8517	. 844
•9388	.9345	•9301	9256	•9209	•9161	• 9877	•8819	.8759	.869
•9578	.9544	.9508	•9471	.9432	•9392	•9111 •9351	•9060 •9308	•9008 •9263	•895 •921
0771	.7					*****	• > > 0 0	• 7 2 6 3	• 921
					•9630	•9597	• 9563	•9527	.948
						•9653	•9622	•9590	• 95 5
							•9677	•9649	.961
						•9752	•9728	.9704	.967
•9892	•9878	•9864	•9848	.9832	•9814	•9795	•9775	•9754	•973
•9915	•9904	•9892	•9879	-9865	-9850	. 0834	.0817	0700	•977
•9935	•9926	.9916							
•9951	•9944	.9936							•982
•9965	•9959								•985
.9974	•9970	.9965	9960	9954	•9947				•988 •991
. 0000	0077							•,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• //1
							• 99 45	•9937	•992
					•9965	•9960	•9955	•9948	.994
						•9968	•9963	•9958	•995
				•9981	•9978	•9974	•9970		•996
• 9993	•9991	•9989	•9987	•9985	•9982	•9979	•9976	.9972	.996
•9994	•9993	•9992	•9990	. 9988	. 9986	.9984	- 00 0 1	0070	007
•9996	•9995	9994							• 997
•9997	•9996	•9995							• 997
•9998	.9997	.9996							• 998
•9998	•9998	•9997	•9996	•9996	•9995				•998°
0000	0000	0000				• • • • • • • • • • • • • • • • • • • •	• > > > 2	• >>>1	• 770
• 7 7 7 7	• 7778						• 9994	.9993	•999
						•9996	• 9995	•9994	•9993
		•9999			•9997	•9997	•9996	.9995	.9994
			9999			•9997	.9997	•9996	9995
				•9999	•9998	•9998	•9997	•9997	• 9996
					•9999	.9998	.0008	. 0007	• 999
									• 9998
						•			
							• 7 7 7 7		• 9998
								• > > > >	•9998 •9999
									•9 99 9
	.9771 .9805 .9837 .9866 .9892 .9915 .9935 .9951 .9965 .9974 .9988 .9988 .9998 .9998 .9999 .9993	.9771 .9746 .9805 .9783 .9837 .9818 .9866 .9850 .9892 .9878 .9915 .9904 .9935 .9926 .9951 .9944 .9965 .9959 .9974 .9970 .9980 .9977 .9984 .9981 .9988 .9985 .9993 .9991 .9994 .9991 .9994 .9995 .9997 .9998	.9771	•9771	.9771	.9771	.9771	.9771	. 9771

*	}		· NOBA	BILITY OF	WAIT LESS	THAN OR EQ	UAL TO T			
Т	•30	• 31	•32	•33	UTILI	ZATION •35	• 36	•37	20	
.00	•7000	•6900	•6800	•6700	4400			•31	•38	•39
• 10	•7213	•7117	•7021		•6600	•6500	• 6400	•6300	•6200	•610
• 20	•7433	•7341	•7249	•6925	• 5828	•6732	• 5635	•6537	.6440	
• 30	•7659	•7572	•7485	• 7157	•7064	•6971	• 6878	.6784	•6690	• 634
• 40	• 7892	•7811		•7397	•7309	·7220	•7130	.7040	•6949	•659
	1072	• /011	•7729	•7645	•7562	.7477	.7391	•7305	•7218	• 685
•50	•8133	2057						0.505	01210	• 713
•60	• 9381	.8057	•7980	• 7902	• 78 2 3	•7743	•7662	•7580	7407	
•70	•8636	•8311	• 8239	•8167	•8094	•8019	»7943	• 7866	•7497	• 741
.80		•8572	.8507	.8441	.8373	.8305	.8234	• 8162	•7788	• 770
	•8899	•8842	•8784	.8724	.8663	•8600	• 8536		•8089	•801
• 90	•9170	•9120	•9070	•9017	•8963	•8907		.8470	•8403	•833
					•0,03	•0701	•8849	●8789	8728	· 866
1.00	• 9449	•9408	.9364	.9319	.9273	•9224				
1.10	• 9520	• 9483	9444	9404			•9173	•9121	•9066	•901
1.020	•9587	.9554	9519		•9361	•9317	• 9271	•9223	•9173	•912
1.30	.9650	•9620	•9589	• 9483	.9445	•9405	•9363	•9319	•9274	•922
1.40	•9707	•9681		•9557	•9523	•9487	.9449	•9410	9369	•932
	1	• 4091	•9654	•9625	•9595	•9563	•9530	.9494	•9457	
1.50	•9758	0704						W > T > T	07427	•941
1.60		•9736	•9713	•9688	•9661	09633	•9603	•9572	0530	
	• 9804	•9785	•9765	• 9743	.9720	•9695			• 9539	• 950
1.70	• 9844	•9827	•9810	• 9791	•9771	9750	• 9669	• 9642	•9612	•958
1.80	• 9876	•9863	.9848	•9832	•9815		•9727	• 9703	•9677	• 9650
1.90	• 9902	•9890	•9878	•9864		•9796	•9777	•9755	•9733	•9708
]	· ·	• / 0 . 0	• 7604	•9850	•9834	•9816	e9798	•9778	• 9757
2.00	• 9920	•9910	•9899	0000						
2.10	.9933	•9925	•9916	•9888	•9875	•9861	• 9846	•9830	*9812	• 9793
2.20	9945	•9938		• 9905	•9894	•9882	•9869	•9855	•9839	9822
2.30	9955	•9949	•9930	•9921	•9911	•9901	•9889	•9877	•9863	
2.40	•9963		•9942	69934	•9926	•9917	.9907	9896		• 9848
2.040	• 7703	•9958	.9952	•9946	•9939	•9931	9922	•9913	•9884	•9871
2.50	0070					,51		07713	•9902	•9891
2.50	• 9970	•99 6 6	•9961	. 995 5	9949	•9943	•9935	0000		
	• 9976	•9972	•9968	•9963	9958	9952		•9927	•9918	•9908
2.70	•9981	•9978	•9974	•9970	•9966	•9961	•9946	•9939	•9931	•9922
2.80	•9984	•9982	•9979	• 9975	•9972		• 9955	•9949	•9942	.9934
2.90	• 9987	•9985	•9982	•9980		•9967	•9962	•9957	•9951	.9944
			·	· 770U	•99 7 6	•9973	•9969	•9964	•9959	• 9953
3.00	•9990	•9988	•9986	0000						• , , , ,
3.10	• 9991	•9990	9988	•9983	•9980	•9977	•9974	•9970	.9965	9960
3.20	9993	9992		•9986	•9984	•9981	• 9978	.9974	•9970	• 9966
3.30	9994	•9993	.9990	•9988	•9986	•9984	•9981	•9978	•9975	
3 • 40	9995		•9992	•9990	.9989	•9987	•9984	•9982		•9971
3 8 4 0	• 7770	•9994	19993	•9992	•9991	• 9989	•9987		•9979	•9976
3.50	200.					• , , , ,	0 7 7 0 1	• 9985	•9982	• 9979
	• 9996	•9995	•9995	.9994	•9992	•9991	0000			
60	•9997	•9996	•9996	9995	•9994	•9992	•9989	•9987	·9985	•9983
• 70	o9998	•9997	•9996	•9996	9995	•9992	•9991	•9989	•9987	9985
80	• 9998	•9998	9997	•9996	•9996		s9992	•9991	9989	•9987
90	.9998	•9998	•9998	9997		•9995	o9994	•9992	•9991	.9989
1		-,-,0	• > > > 0	07797	• 9996	• 9 996	•9995	•9994	09992	59991
•00	• 9999	•9998	•9998	000-						22221
•10		•9999		•9998	•9997	•9996	9996	•9995	•9994	
• 20		• 7 7 7 7	9998	•9998	•9997	•9997	•9996	9996	• 9995	•9992
•30			•9999	• 9998	.9998	•9997	•9997	•9996		•9994
.40				•9999	•9998	9998	•9997	•9997	* 9995	•9995
• 40					9999	•9998	• 9998		•9996	
						• / / / 0	ファブゼ	•9997	•9997	.9996
• 50						•9999	0.00			
•60						• 7777	•9998	•9998	•999 7	.9997
.70							•9998	•9998	•9998	•9997
.80							•9999	.9998	9998	•9998
.90								9999	•9998	
										•9998
.00									•9999	•9998
• • •										

.00	T					UTILIZA	TION				
		•40	•41	• 42	.43			• 46	•47	• 48	•49
40 *7741 6.951 6.581 6.770 6678 6.585 6.491 6.396 6301 626 80 8263 8190 9116 8040 7763 7883 7802 7719 7634 754 1.00 8951 88890 8827 8762 8695 8854 8480 8404 831 1.20 9176 9125 9071 9015 8957 8896 8834 8768 8701 861 1.40 9377 9335 9290 9242 9193 9142 9088 9031 897 1.80 9514 9477 4048 9397 9344 9309 9261 9211 911 1.80 9547 9473 4048 9397 9344 9309 9261 9211 9911 1.80 954 9514 9477 4048 9397 9354 9309 9261 9211 9911 2.20 983<	.00	•6000	•5900	•5800	•5700	•5600	•5500	•5400	•5300	•5200	.510
.66C		•6500	-6404	.6308	.6212	.6115	•6018	.5920	•5822	.5724	• 562
.6CC	• 40	• 7041	•6951	.6861	.6770	.6678	.6585	.6491	•6396	.6301	.620
880	.60	•7627						•7116	.7027	.6936	.684
120	.80	• 8263	.8190			.7963		•7802	•7719	.7634	• 754
1.20	1.00	. 8951	.8890	-8827	- 8 7 6 2	.8695	.8626	.8554	.8480	.8404	.832
140	1.20								.8768	.8701	.863
1.6C											.891
1.80											.915
0.20											.936
0.20	2.00	0.772	0751	0777	-0703	0475	0646	. 9415	. 05.22	. 9547	. 951
2.40											
\$\begin{align*} \begin{align*} \begi											
2.86											
3.0C											•982
\$\begin{align*} \begin{align*} \begi											
8.40		• 9954	• 9948								• 986
9983 9980 9977 9973 9988 9998 9998 9999 9998 9999 9998 9999 9999 9999 9999 9999 9999 9999 9999	3.20	•9967	•9962	•9956	.9950	•9943	•9935	•9927		•9906	•989
\$\begin{align*} \qq \qua	3.40	• 9976	•9972	•9968	•9963	•9958	•9952	.9945	•9937	•9928	•991
\$\begin{align*} \begin{align*} \begi	3.60	• 9983	•9980	•9977		.9968	•9964	•9958	•9952	.9945	.993
\$\begin{array}{cccccccccccccccccccccccccccccccccccc						•9976	•9973	•9968	•9963	•9958	• 995
\$\begin{array}{cccccccccccccccccccccccccccccccccccc	4.00	- 9991	.0000	.0007	- 0085	.05.2	.0070	-9076	. 9972	.0068	. 996
\$\begin{array}{cccccccccccccccccccccccccccccccccccc											
4.60											
\$\begin{align*} \text{4.80} & \text{.998} & \text{.9997} & \text{.9996} & \text{.9995} & \text{.9993} & \text{.9992} & \text{.9991} & \text{.9989} & \text{.9998} \\ \text{.9998} & \text{.9997} & \text{.9996} & \text{.9995} & \text{.9994} & \text{.9993} & \text{.9991} & \text{.9995} \\ \text{.9999} & \text{.9998} & \text{.9999} & \text{.9996} & \text{.9995} & \text{.9995} & \text{.9995} & \text{.9995} \\ \text{.9997} & \text{.9996} & \text{.9997} & \text{.9996} & \text{.9995} & \text{.9995} \\ \text{.9997} & \text{.9997} & \text{.9996} & \text{.9997} & \text{.9996} \\ \text{.9997} & \text{.9997} & \text{.9996} & \text{.9997} & \text{.9996} \\ \text{.9999} & \text{.9998} & \text{.9998} & \text{.9997} & \text{.9996} \\ \text{.9999} & \text{.9998} & \text{.9998} & \text{.9998} & \text{.9999} \\ \text{.9999} & \text{.9999} & \text{.9999} & \text{.9999} \\ \text{.9999} & \text{.9999} \\ \text{.9999} & \text{.9999} \\ \text{.9999} & \text{.9999} & \text{.9999} \\ \text{.9999} \\ \text{.9999} & \text{.9999} \\ \text{.9999} \\ \text{.9999} \\ \text{.9999} & \text{.9999} \\ \text{.9999} & \text{.9999} \\ \text{.9999} \\ \text{.9999} & \text{.9999} \\ \text{.9999} \\ \text{.9999} \\ \text{.9999} & \text{.9999} \\ \											
5.00											998
5.20									Later 1		
\$ 9999				•9997	•9997	•9996	•9995	•9994		•9991	•999
\$ 999		• 9999	•9998	•9998	•9998	•9997	• 9 996	•99 9 5	•9995	•9993	•999
\$.9999	5.40	• 9999	•9 9 99	.9999	•9998	•9998	•9997	•9997	•9996	• 9995	•999
6.00 6.20 6.40 6.60 6.60 6.80	5.60				.9999	•9998	•9998	•9997	•9997	• 9996	•999
6.20 6.40 6.60 6.60 6.60 6.80	5.80					•9999	•9998	•9998			• 999
6.20 6.40 6.60 6.60 6.60 6.80	5.00						49999	•9999	•9998	A9998	•999
\$640 6660 660 660							•	•			
6660 6680 •99'		1							• • • • • • • • • • • • • • • • • • • •		
6,80										• , , , ,	
•99											999
	7.00										•999
	7•00										•

.000		1		PROBA8	ILITY OF W	AIT LESS T	HAN OR EQU	AL TO T			
.50	Ţ					UTILIZ	ATION				
.200		•50	•51	•52	•53			• 56	•57	•58	• 5
.20	•00	•5000	• 4900	•4800	•4700	•4600	4500	4400	4300	4000	
.40	• 20	• 5526	.5426								• 41
.600	- 40	-6107									• 46
.80	- 60									•5297	•51
1.00										•5948	•58
1 20	• 60	• 7459	• / 369	• 7276	•7182	• 7086	•6987	•6887	•6784	.6680	• 65
1.20	1.00		.8160	.8074	•7985	•7894	• 7800	.7703	-7604	-7501	. 72
1.40	1.20	• 8558	. 8483	8405	.8324						
1.60	1.40	• 8847	.8781								
1.80	1.60	9103									
2.00											
2.20	1.00	• > > 1 -	•9200	•9212	• 9126	• 9098	•9036	•8971	•8903	•8831	•87
2-20	2.00		•9427	.9382	.9334	• 9283	•9229	•9172	•9111	.9047	• 89
2.40	2.20	• 9582	.9546	.9507	.9466	. 9422	.9375				
2.600	2.40										
2.800											
3.00											• 94
3.20	2.00	• 9805	•9783	•9750	• 9 / 3 5	• 9707	•9678	•9645	•9610	•9572	• 95
3.20	3.00	• 9847	•9830	.9810	.9789	.9766	.9740	.9713	.9682	9449	- 04
3.40	3.20	• 9881	9867								
3.60	3-40										
3.80											
4. 0D.											• 97
1.	3.00	1	• 9936	• 9 72 1	• 9917	•9905	. • 9892	• 9878	• 9861	•9843	• 98
1.	4 . OD	• 9957	•99500	•9942 ⁹	9934	•93245	.09861	- 89 0016	. 09870	. 000700	0.9
**************************************	4.20	9966	. 9961	93556	-00485	. o 82.94					
4 60			0020	66230	00'50'						
1984 1981 1978 1974 1966 1966 1966 1974 1966 1975											• 99
5 000			• 99 / b	9972							.89
5 20.	2 50	20.70		• 2978	• 77 / 4"	• 9909	• 7 7 6 4	• 9958/	•99513	• 9943	• 99
5 20.	5.00	9988	• 9985	99821	• 9979 ⁵	9975	.99743	25800	. የምሩሽ፣	OOKS	0.01
5.40	5 20	9990.	9998	9986	- 99843	0800					
5.60	5-40	0003									
\$ 80											
\$ 000									•9978	•9974	.996
\$ 20	5 . 80	• 9995	• 9994	•9993	•9992	•9990	•9988	•9985	•9983	•9979	• 99
\$20	6.00	• 9996	• 9996	9995	9993	9992	-0000	- 0 0 0 04	0006	0000	
\$40		9997									
\$6.60											• 991
\$ 80										.9989	. 998
*80 *999 *998 *9998 *9997 *9997 *9996 *9995 *9994 *9992 *9997 *9996 *9995 *9994 *9992 *9998 *9998 *9997 *9997 *9996 *9995 *9996 *9995 *9996 *9995 *9996 *9997 *9997 *9996 *9997 *9997 *9996 *9998 *9999 *9998 *9998 *9997 *9997 *9997 *9997 *9997 *9997 *9997 *9997 *9997 *9997 *9997 *9997 *9997 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *9998 *9999 *999							•9995	• 9994	•9992	•9991	.998
\$\begin{array}{cccccccccccccccccccccccccccccccccccc	6 • 80	• 9999	•9998	•9998	•9997	•9997	•9996	•9995	.9994		• 99
\$\begin{array}{cccccccccccccccccccccccccccccccccccc	7.00		•9999	.9998	9998	. 9997	-0007	0004	2005	0.00	
**************************************	7.20										
7.60 7.80 1.9999 1.				• / / / /							• 9 9
7.80 .9999 .9998 .9998 .9998 .9998 .9998 .9998 .9998 .9998 .9998 .9998 .9998 .9998 .9998 .9998 .9999 .9998 .9999 .9998 .9999 .9999 .9998 .9999					• 9999						. 999
\$3.00 3.00						• 9999			•9997	•9997	• 999
\$20 \$40 \$60 \$60 \$60 \$60 \$60 \$60 \$60 \$6							•9999	• 99 98	• 99 98	•9997	•999
\$20 \$40 \$60 \$60 \$60 \$60 \$60 \$60 \$60 \$6	8.00							. 9990	. 00 00	0000	0.00
\$440 \$60 \$999	8.20							• / / / 7			
9999 99 9999 99 900 4 0 4 0 9099 999 9099 9998 99 9099 9998 99									• 7779		• 999
9999 •99 •99 •99 ••••••••••••••••••••••											• 999
•99 •00 •00 •00 •00 •00 •00 •00										•9999	• 9 99
* * * * * * * * * * * * * * * * * * *	0.00										. 999
4. 0 . 9999 . 9998 . 99 . 9999 . 9998 . 99 . 9999 . 999	9.00									4933456	.000
• • • • • • • • • • • • • • • • • • •	4 0										
•9999 9998 9999 •9999 999											
.9099 ,99	0.0										
									* 7779		99
Pr.										.9999	,999
	2.6										

Ł									7	
Т					UTILIZA	TION •65	•66	.67	•68	.69
	•60	•61	•62	.63	•64	• 60	•00			
•00	• 4000	•3900	.3800	.3700	.3600	•3500	.3400	•3300	*3200	•3100
.20	.4510	.4406	.4302	.4197	.4092	.3986	.3880	•3773	•3666	.3559
.40	•5085	.4978	.4870	.4760	.4650	.4539	.4427	•4314	•4200	.4085
.60	.5733	.5624	.5512	.5400	.5285	•5169	•5052	• 49 33	•4812	•4690
.80	.6464	•6353	.6240	.6125	.6007	•5887	.5765	.5640	.5513	.5384
	7200	7170	.7064	.6947	.6827	.6704	.6578	.6449	.6316	.6181
1.00	•7288	•7178 •7571	7463	.7351	.7236	•7117	•6994	.6868	.6738	.6604
1.20	• 7677		• 7844	7739	.7629	• 75 15	.7397	.7275	•7148	•7017
1.40	.8045	•7947	.8197	8097	.7994	.7886	.7774	.7657	•7535	• 7409
1.60	.8383	.8292		.8413	.8317	.8216	.8110	.7999	.7883	• 7762
1.80	•8 67 6	•8592	.8505	•0413	•031	***************************************			0.70	.8058
2.00	.8907	.8832	.8752	.8667	.8578	.8485	.8386	.8282 .8515	.8173 .8413	.8305
2.20	•9089	.9021	.8949	•8872	.8790	.8704	.8612		.8628	8526
2.40	. 9246	.9185	•9120	•905 0	.8976	.8897	.8813	.8723	.8815	.8721
2.60	9378	•9323	9265	.9202	•9135	•9063	.8986	·8903		.8889
2.80	.9486	.9438	9386	.9329	•9269	•9203	•9133	•9058	•8976	• 0 0 0,7
	0.74	. 0621	.9485	.9435	•9360	•9321	•9258	•9189	•9114	.9034
3.00	•9574	•9531		9524	9475	.9422	9365	.9302	.9234	•9160
3.20	.9647	9610	•9569		9556	9509	9457	9400	.9338	.9270
3.40	•9708	•9675	.9639	•9600		•9582	9535	9484	.9428	.9366
3.60	• 9759	•9730	•9698	.9663	•9625	.9644	9602	9556	.9505	.9449
3.80	•9800	•9775	•9747	•9717	• 9682	• 7044	. 7002			
4.00	-9835	.9813	.9789	.9761	.9731	•9697	•9660	.9618	•9572 •9630	• 952 • 958
4.20	.9863	9844	.9823	.9799	•9772	.9743	•9709	.9672		963
4.40	9887	.9871	9852	9831	•9807	.9781	•9751	•9718	•9680	
	9906	9892	.9876	9858	•9837	.9814	•9787	•9757	•9723	.968
4.60	9923	•9910	.9896	.9880	9862	.9841	•9818	•9791	•9761	• 972
4000					0093	.9865	.9844	.9820	.9793	.976
5.00	•9936	•9925	.9913	•9899	•9883	9885	9867	9845	.9821	.979
5.20	.9947	•9938	•9927	9915	• 9901			9867	.9845	.982
5.40	•9956	.9948	.9939	•9929	.9916	.9902	•9886	•9886	•9866	984
5.60	. 9964	.9957	.9949	•9940	. 9929	•9917	• 9902		.9884	986
5.80	.9970	.9964	.9957	•9949	.9940	•9929	.9917	.9902	. 69884	• 700
	.9975	•9970	•9964	•9957	•9949	.9940	.9929	•9915	•9900	.988
6.00		9975	9970	9964	9957	9949	.9939	.9927	•9914	• 989
6.20	•9979		9975	9970	9964	9956	.9948	.9937	•9925	• 991
6.40	•9983	•9979		9975	9969	9963	9955	.9946	•9935	•992
6.60	•9986 •9988	•998 3 •998 6	•99 7 9	9975	9974	9968	.9962	.9954	.9944	• 993
OV	1		1				0047	•9960	•9952	•994
7.00	•9990	.9988	•9985	•9982	•9978	•9973	•9967		9958	994
7.20	•9992	.9990	.9988	•9985	•9981	•9977	.9972	9966	9964	995
7.40	9993	.9992	.9990	.9987	• 9984	•9981	•9976	.9971		• 995
7.60	9995	9993	9991	.9989	•9987	•9983	•9980	•9975	•9969	996
7.80	•9995	.9994	.9993	•9991	•9989	•9986	•9982	•9978	•9973	• 776
	•9996	.9995	.9994	.9992	•9990	•9988	.9985	.9981	.9977	• 997
8.00	9997	9996	9995	9994	9992	9990	•9987	•9984	.9980	•997
8.20		9997	9996	9995	9993	9991	.9989	•9986	.9983	• 997
8.40	•9997	9997	9996	9995	9994	9993	9991	.9988	•9985	•998
8.60	•9998 •9998	•9997	9997	•9996	9995	•9994	•9992	.9990	.9987	• 998
8.80	• ******	• > > > 0	-					2003	•9989	•998
9.00	9999	•9998	.9998	•9997	• 9996	•9995	•9993	•9991		
9.20		.9998	.9998	.9997	• 9996	•9995	•9994	•9992	•9990	• 998
9.40	i	9999	.9998	.9998	• 9997	.9996	•9995	•9993	•9992	• 998
	1	•	9999	9998	9997	.9997	•9996	• 9994	•9993	• 999
9.60	1		•	•9998	•9998	•9997	•9996	• 99 95	•9994	• 99

T	·				UTILIZA	TION				
,	•70	•71	•72	• 73	•74	• 75	• 76	•77	• 78	•79
•00	• 3000	•2900	.2800	.2700	.2600	•2500	• 2 4 0 0	.2300	•2200	.210
.20	.3451	.3342	.3234	•3124	•3015	•2905	.2794	•2683	•2571	.245
•40	•3969	.3852	.3735	.3616	.3496	• 3375	•3253	•3130	•3006	.288
•60	. 4566	. 4440	.4313	.4184	.4053	•3921	•3787	•3651	•3513	•337
.80	• 5252	•5118	.4981	.4842	•4700	•4555	• 4408	•4258	•4106	•395
1.00	•6041	•5899	•5752	•5603	•5449	•5293	•5132	•4967	•4799	.462
1.20	.6466	.6324	.6178	.6027	•5873	•5713	• 5550	.5381	•5208	• 503
1.40	•6882	.6742	.6597	.6447	.6292	•6132	• 5966	•5795	• 56 19	. 543
	•7277	•7140	.6997	.6849	.6696	.6536	•6370	.6198	•6019	•583
1.60	.7635	.7503	.7364	.7219	.7068	•6910	.6746	•6574	•6395	•620
	7007	•7810	•7676	.7536	.7389	•7235	•7073	•6904	•6726	.654
2.00	• 7937		•7942	.7807	.7666	•7516	.7358	•7192	.7018	. 683
2.20	•8190	•8070	.8183	8055	.7919	•7775	• 7622	.7460	.7289	.710
2.40	.8419	•8305 0513	•8399	.8277	.8147	.8008	• 7861	.7705	•7538	.73€
2.60	•8620	.8513			.8349	•8217	.8075	• 7925	•7763	• 759
2.80	•8795	.8695	•8587	.8472	•0349	•0217	•0073	• 1 723	• , , , ,	
3.00	•8947	.8853	.8752	.8644	.8527	•8402	.8267	.8122	•7966	• 780 • 799
3.20	• 9080	•8993	.8899	.8797	,86B7	•8568	.8439	.8301	.8152	
3.40	• 9196	•9116	•9028	•8933	.8830	•8717	• 8596	.8463	.8320	•816
3.60	• 9298	•9224	•9142	.9054	.8957	.8851	•8736	•8610	.8474	•832
3.80	•9387	•9318	•9243	•9161	•9070	•8971	.8862	.8743	•8613	. 84
4.00	•9464	•9401	•9332	•9255	•9171	•9078	.8976	.8863	.8739	.860
	9532	•9474	•9410	•9340	.9261	•9174	•9078	.8971	.8954	.872
4.20	•9591	•9538	9480	9414	9341	9260	•9170	.9070	.8959	.883
4.40	•9643	•9595	9541	9480	9413	•9337	•9253	•9159	•9053	.893
4.60	•9688	• 9644	•9595	9539	.9477	•9406	•9327	.9239	•9140	.902
		- 4 0 7	0440	0503	•9533	•9468	•9395	•9312	•9218	•911
5.00	•9727	•9687	.9642	•9591		•9524	• 9455	9377	•9289	•919
5.20	•9762	•9726	•9684	•9637	•95B4		• 9509	.9437	•9354	.926
5.40	•9792	•9759	•9721	•9678	•9629	•9573				.932
5.60	•9818	•9788	•9754	•9715	•9670	•961B	•9558	.9491	•9413	
5.80	• 98 41	•9814	•9783	•9747	•9705	•9658	•9602	•9539	•9467	• 938
6.00	• 9861	•983 7	•9808	.9776	•9737	•9693	•9642	•9583	•9515	•943
6.20	• 9879	•9857	•9831	•9801	•9766	•9725	•9678	•9623	•9559	.948
6.40	•9894	•9874	•9851	•9823	•9791	•9754	•9710	•9659	•9600	• 953
6.60	•9907	.9890	•9868	•9843	•9814	•9779	•9739	•9692	•9636	•957
6.80	•9919	•9903	•9884	•9861	•9834	•9802	•9765	•9721	•9669	•960
7.00	•9929	•9915	•9897	•9877	•9852	•9823	•9788	•9748	•9699	.964
7.20	9938	•9925	9909	9891	.9868	.9841	•9810	•9772	.9727	.96
7.40	• 9946	•9934	9920	•9903	•9883	•9858	•9829	.9794	•9752	.970
	9953	9942	•9929	.9914	•9895	•9873	.9846	.9813	.9774	•97
7.60 7.80	9959	9949	.9938	.9924	•9907	•9886	•9861	•9831	•9795	.97
		0054	•9945	•9932	•9917	•9898	•9875	•9847	•9814	•97
8.00	•9964	•9956		•9940	•9926	•9909	•9887	•9862	•9831	97
8.20	•9969	•9961	•9952	•9940 •9947	•9926	•991B	• 9899	•9875	•9846	• 98
8.40	•9973	•9966	•9957		•9941	•9918	•9909	•9887	• 9860	• 98
8.60	•9976	•9970	•9962	• 9953				•9898		• 98
8.80	•9979	•9974	•9967	•9958	•9947	•9934	•9918	• 70 70	•9873	• 70
9.00	•9982	•9977	•9971	•9963	•9953	•9941	•9926	•9907	•9884	•98
9.20	•9984	•9980	•9974	•9967	•9958	•9947	•9933	•9916	•9895	• 98
9.40	• 9986	•9982	•9977	•9971	•9963	•9953	•9940	• 9924	•9905	•98
9.60	.9988	.9984	.9980	•9974	.9967	•9958	•9946	•9932	•9913	•98
9.80	•9989	•9986	•9982	•9977	•9970	•9962	•9951	•9938	•9921	•99
	1									

10.00	T						TION				
10.20		•70	•71	• 72	•73			• 76	•77	•78	• 79
10.20	10.00	•9991	.9988	.9984	. 908.0	.0074	0044	2051	0044	0000	
10.40 9993 9991 9988 9986 9981 9975 9968 9981 9976 9988 9981 9976 9988		_									•990
10.60 9994 9992 9989 9987 9981 9977 9968 9991 9981 9971 9981 9971 9981 11.00 9995 9994 9995 9998 9997 9988 9997 9988 9997 9998 9997 9998 9997 9998 9999 9998 9997 9998 9997 9998 9999 9998 9997 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9998 9999 9999 9998 9999 9999 9998 9999 9999 9998 9999											•991
10.8 9995 9993 9990 9987 9985 9978 9971 9986 9985 9981 9981 9981 9981 9981 9981 9981 9981 9981 9981 9981 9988											• 992
11-00											•993
11-20					• > >	•,,,,,	• > > 10	• >> 1	• 7 7 6 3	• 7 9 7 1	• 993
14-60									•9966	•9956	.994
11+60										•9960	•994
1.80											• 995
2-00											•995
2.20	1.00	• 5557	• 4 4 4 6	•9995	• 9993	•9991	•9987	•9983	•9977	•9970	•996
22-20		•9998	•9997	•9995	.9994	•9992	•9989	•9985	.9979	.9972	•996
2440		•9998	•9997	•9996							•996
2.460			•9997								•996
2 8 80			.9998	•9997							•997
3.00	2.80	•9999	•9998								•997
3.20	2 00										-,,,
3.40											•997
3.60		1								• 9984	• 997
3.80 .9999 .9999 .9998 .9997 .9996 .9995 .9998 .9997 .9996 .9995 .9998 .9997 .9996 .9995 .9992 .9989 .9998 .9997 .9996 .9995 .9992 .9989 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9998 .9997 .9998 .9997 .9996 .9998 .9997 .9998 .9997 .9998 .9997 .9998 .9997 .9998 .9998 .9997 .9998 .9997 .9998 .9998 .9997 .9998 .9998 .9997 .9998 .9998 .9997 .9998 .9998 .9998 .9998 .9999 .9999										•9986	•998
4.00 4.20 4.20 4.20 4.20 4.20 4.40 4.9998 4.9997 4.995 4.9995 4.9998 4.9097 4.995 4.40 4.60 4.9999 4.9998 4.9997 4.996 4.9991 4.80 4.80 4.9999 4.9988 4.9997 4.996 4.9991 4.80 4.9999 4.9988 4.9997 4.9996 4.9991 4.9998 4.9997 4.9995 4.9998 4.9997 4.9996 4.9998 4.9997 4.9996 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9999 4.9998 4.9997 4.9998 4.9999 4.9998 4.9997 4.9998 4.9999 4.9998 4.9997 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9999 4.9999 4.9998 4.9999 4.9999 4.9998 4.9999 4.9998 4.9999 4.9998 4.9997 4.9999 4.9998 4.9999 4.9998 4.9997 4.9999 4.9998 4.9997 4.9999 4.9998 4.9997 4.9999 4.9998 4.9997 4.9999 4.9998 4.9997 4.9999 4.9998 4.9997 4.9998 4.9997 4.9999 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9997 4.9998 4.9999 4.9999 4.9999 4.9999 4.										•9987	• 998
4.20 4.40 9.998 9.999 9.998 9.997 9.996 9.999 9.998 9.997 9.995 9.999 9.998 9.997 9.995 9.999 9.998 9.997 9.995 9.999 9.998 9.997 9.996 9.999 9.998 9.999 9.998 9.997 9.996 9.998 9.999 9.998 9.997 9.996 9.998 9.999 9.998 9.999 9.998 9.999 9.998 9.997 9.996 9.998 9.997 9.996 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.997 9.998 9.998 9.997 9.998 9.998 9.997 9.998 9.998 9.998 9.998 9.998 9.999 9.998 9.999 9.998 9.999 9.998 9.999 9.998 9.999 9.998 9.999 9.998 9.999 9.998 9.999 9.998 9.999 9.998 9.999 9.999 9.998 9.999 9.	3.80		•9999	•9999	•9998	•9997	•9996	•9994	•9992	•9988	•998
4.20 4.20 4.40 3.999 3.998 3.997 3.996 3.999 3.998 3.997 3.996 3.999 3.998 3.9997 3.996 3.999 3.998 3.9997 3.996 3.999 3.998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.996 3.9998 3.9997 3.998 3.9997 3.998 3.9998 3.9997 3.998 3.9999 3.9998 3.9998 3.9999 3.9998 3.9999 3.9998 3.9999 3.9998 3.9999 3.9998 3.9998 3.9999 3.9998 3.9999 3.9998 3.9999 3.9998 3.999	4.00				•9998	•9997	. 9996	-9995	.9992	. 9090	.000
4.40 4.60 4.9999	4.20										
4.60	4.40										
4.80 .9999 .9998 .9998 .9997 .9995 .9993 .95 .00 .9999 .9998 .9997 .9995 .9993 .95 .00 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9996 .9998 .9997 .9998 .9997 .9998 .9997 .9998 .9997 .9988 .9997 .9998 .9999 .9999 .9998 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9999 .9998 .9999 .9999 .9998 .9999 .9999 .9998 .9999 .9999 .9998 .9999 .9999 .9998 .9999 .9998 .9999 .9999 .9998 .9											
\$ 9999											•998 •999
5.20 5.40 5.40 5.40 5.40 6.40 6.20 6.40 6.20 6.40 6.40 6.40 6.50 6.40 6.40 6.40 6.40 6.40 6.40 6.40 6.4	5 00									•,,,,	• , , ,
5.40 5.60 6.60 6.00 6.20 6.20 6.40 6.20 6.40 6.40 6.40 6.40 6.40 6.40 6.40 6.4						•9999				•9993	•999
5.60 5.80 9998 9997 9998 9997 9995 99 6.00 6.00 6.00 6.20 6.40 6.40 6.60 9998 9998 9998 9997 9996 99 6.60 9998 9998 9998 9997 9996 999 6.60 9998 9998 9998 9997 999 9999 9998 9999 9998 9997 999 9999 9998 9997 999 9999 9998 9997 999 9999 9998 9999 9998 9999 9900 8.20 8.80 8.80 8.90 8.80 8.90 8.80 8.90 8.9										•9994	•999
\$\frac{6.00}{6.20}\$ \$\frac{6.00}{6.40}\$ \$\frac{6.00}{6.40}\$ \$\frac{6.00}{6.40}\$ \$\frac{6.00}{6.60}\$ \$\frac{9.998}{9.998}\$ \$\frac{9.997}{9.998}\$ \$\frac{9.998}{9.998}\$ \$\frac{9.997}{9.998}\$ \$\frac{9.998}{9.998}\$ \$\frac{9.997}{9.999}\$ \$\frac{9.998}{9.999}\$ \$\frac{9.997}{9.999}\$ \$\frac{9.998}{9.999}\$ \$\frac{9.997}{9.999}\$ \$\frac{9.998}{9.999}\$ \$\frac{9.997}{9.999}\$ \$\frac{9.998}{9.999}\$ \$\frac{9.997}{9.999}\$ \$\frac{9.998}{9.999}\$ \$\frac{9.999}{9.999}\$ \$9.9									•9996	•9995	• 999
6.00 6.00 6.20 6.40 6.60 6.60 6.60 6.60 6.60 6.80 7.00 7.00 7.00 7.20 7.40 7.60 7.80 8.00 8.20 8.40 8.40 8.40 8.40 8.50 8.80 9.90 9.80								•9998	•9997	•9995	•999
6.20 6.40 6.40 6.60 6.80 7.00 7.00 7.20 7.60 7.60 7.80 8.00 8.00 8.20 8.40 8.80 9.90	5.80						•9999	• 9998	•9997	•9996	•999
6.20 6.40 6.40 6.40 6.60 6.60 6.80 7.60 7.60 7.60 7.80 8.00 8.80 8.00 8.80 8.90 8.90 8.90 8	6.00							. 0000	0007	0004	000
6.40 6.60 6.60 6.60 6.80 9998 9998 9997 99 9998 9997 99 9998 9997 99 9998 9998 9998 9998 9998 9998 9998 9998 9998 9999 9998 9999 9999 9999 9999 9999 9999 9999 9999								-			-
6.60 6.80 .9999 .998 .9997 .99 7.00 7.00 7.20 7.40 7.40 7.60 7.80 8.00 8.20 8.40 8.60 8.60 8.60 8.60 8.60 8.60 8.60 8.6											•999
6.80 7.00 7.00 7.20 7.40 7.80 8.00 8.00 8.00 8.20 8.40 9.900 9.20 9.80											• 999
7.00 7.20 7.20 7.40 7.40 7.60 7.80 8.00 8.20 8.40 8.40 8.60 8.60 8.60 8.60 8.60 8.60 8.60 8.6											• 999
7.20 7.40 7.40 7.40 7.40 7.40 7.60 7.80 8.00 8.00 8.00 8.60 8.60 8.60 8.60								• / / / /	• / / / 0	• 7771	• 9 7 9 1
7.40 7.40 7.60 7.60 7.80 9.999 9.998 9.99 9.998 9.99 8.00 8.20 8.40 9.900 9.20 9.40 9.60 9.80									•9998	•9997	• 999
7.40 7.60 7.60 7.80 8.00 8.00 8.20 8.40 8.60 8.60 8.60 8.60 8.60 8.60 8.60 8.6										•9998	•999
7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60									•9999	•9998	•999
*9999 *9998 *99 8.00 8.20 8.40 8.60 8.80 9.00 9.00 9.20 9.40 9.60 9.80										•9998	•999
8.20 8.40 8.40 8.60 9.999 9.99 9.00 9.20 9.40 9.80	7.80								•9999		•999
8.20 8.40 8.40 8.60 9.999 9.99 9.00 9.20 9.40 9.80	8.00									2222	
8.40 8.60 8.80 9.00 9.20 9.40 9.60 9.80											• 9991
8.60 8.80 9.00 9.20 9.40 9.60 9.80											• 9998
8.80 9.00 9.20 9.40 9.80 9.80											•9998
9•00 9•20 9•40 9•60 9•80											•9998
9•20 9•40 9•60 9•80										•9999	•9998
9•20 9•40 9•60 9•80											•9998
9•40 9•60 9•80 •99											•9999
9•80 9•80 •99											•9999
•99											
	9.80										•9999
	0.00										- , , , ,

T					AIT LESS T					
'	•80	.81	.82	.83	•84	ATION •85	• 86	•87	.88	• 89
•00	• 2000	•1900	•1800	•1700	•1600	•1500	•1400	1200		
.20	.2347	.2234	•2121	•2007	•1893	•1778	•1663	•1300	•1200	•110
•40	• 2754	.2627	.2499	• 2369	• 2239	•2107		• 1547	• 1431	•131
.60	• 3232	• 3089	2944	•2797	• 2649	• 2498	•1975 •2345	. 1841	•1706	•157
•80	• 3793	•3632	•3469	• 3302	•3133	• 2961	• 2786	• 2191 • 2607	•2035 •2426	•18
1.00	•4451	•4271	•4087	• 3899	2706	25.00				
1.20	•4848	4660	• 4467	• 4269	• 3706 • 4066	• 3509	• 3308	• 31 93	•2893	•267
1.40	•5248	•5054	•4854	• 4647	• 4434	• 3858	• 3643	• 3424	•3198	•296
1.60	•5642	•5443	•5236	• 5022	•4434 •4800	• 4214	• 3987	• 3754	•3513	• 320
1.80	•6014	•5811	•5600	• 5381	•5152	•4570 •4914	•4332 •4666	• 4086 • 4409	•3831 •4141	• 350 • 380
2.00	•6345	6141	5000						•4141	• 500
2.20	•6640	•6141 •6437	•5928 •6223	•5705 •5999	•5472 •5763	•5228 •5515	•4973	• 4707	•4429	• 4 1
2.40	•6918	•6716	•6503	•6278	•6041	•5790	•5255	• 4982	•4696	• 439
2.60	•7174	•6975	•6763	•6539	•6302		• 5526	• 5248	•4955	• 464
2.80	•7408	•7212	•7004	.6781	•6545	•6050	• 5 784	• 5502	•5203	• 488
		• 1212	• 7004	•0/01	•6545	•6293	•6025	• 5741	•5438	•51
3.00 3.20	•7621	•7430	•7225	•7005	.6771	•6520	•6252	• 5966	•5660	• 533
	•7817	• 7631	•7430	• 7214	.6982	•6733	•6466	•6179	•5872	• 554
3.40	•7998	• 7816	•7620	• 7409	•7180	•6934	•6668	.6382	.6074	. 574
3.60	•8163	•7987	•7797	• 7590	•7365	•7122	• 6859	• 6574	•6266	• 593
3.80	•8315	•8145	•7960	•7758	• 7538	•7299	•7039	•6756	.6448	.611
4.00	.8454	•8290	.8111	•7914	• 7699	• 7465	•7208	•6928	•6622	• 628
4.20	•8581	.8424	.8251	.8060	• 7850	•7620	•7368	• 7090	•6787	
4.40	• 86 99	.8547	.8380	.8195	• 7991	• 7766	• 7518	• 7245		• 645
4.60	•8806	•8661	.8500	•8321	.8123	• 7903	• 7660	• 7391	•6944	• 661
4.80	•8905	•8766	.8611	.8439	.8246	.8032	•7794	• 7529	•7093 •7235	• 67 6
5.00	•8995	•8863	.8714	.8547	.8361	•8153	7000			
5.20	•9078	•8952	•8809	8649	8469		•7920	• 7660	•7370	• 704
5.40	•9154	•9034	.8897	.8743	8569	•8266	.8039	•7784	•7499	• 717
5.60	9224	•9109	8979	•8831	•8663	.8373	•8151	• 7902	•7621	• 730
5.80	•9288	•9179	•9055	.8913	•8751	•8472 •8566	•8257 •8356	•8013 •8118	•7737 •7848	• 742 • 754
6.00	•9347	•9243	01.25	20.00				• 0110	• 1040	• 1) ~
6.20	9401	•9303	•9125	.8988	•8833	·8654	· 8450	8218	7953	. 765
6.40	9450	•9357	•9189	•9059	•8909	8737	€ 8539	8312	·8053	• 775
6.60	•9496		•9249	•9125	8981	•8814	8623	•8402	.8148	• 785
6.80		•9407	•9305	•9186	• 9047	•8887	8701	8487	.8238	• 795
0.00	•9537	•9454	•9356	•9243	•9110	•8955	8776	•8567	•8324	. 804
7.00	• 95 75	•9497	•9404	•9295	•9168	•9020	•8846	•8643	.8406	•813
7.20	•9611	•9536	•9448	• 9345	•9223	•9080	•8912	•8715	.8484	• 821
7.40	• 9643	• 9572	•9489	•9390	.9274	•9136	.8974	•8783	•8558	• 829
7.60	• 96 72	•9606	•9527	.9433	.9321	•9189	•9033	.8847	•8629	
7.80	•9699	•9637	•9562	•9473	•9366	•9239	• 9088	•8909	•8696	• 837 • 844
8.00	•9724	•9665	•9594	•9509	•9408	•9286	•9140	9044		
8.20	• 9747	•9691	9624	9544	• 9446	•9330	•9140	•8966	•8759	• 851
8.40	•9768	•9716	9652	9575	•9483	•9371	• 9236	• 9021	.8820	• 858
8.60	•9787	•9738	•9678	•9605	•9517	•9371 •9409		• 9073	•8878	• 864
8.80	• 9805	•9758	9702	.9633	•9548	•9446	•9279 •9321	•9122 •9169	.8932 .8985	•870 •876
9.00	•9821	•9777	•9724	•9658	0.5.7.2	0.1.00				• 6 / 6
9.20	• 9835	•9795			•9578	•9480	• 9359	•9213	•9034	.881
	• 9835 • 9849		•9744	•9682	•9606	•9512	• 9396	• 9255	•9081	.887
9.40		•9811	•9763	•9704	•9631	•9541	• 9431	•9294	•9126	.892
9.60	• 9862	•9826	•9781	9725	•9656	•9570	• 9463	•9331	.9169	.896
	•9873	• 9839	•9797	• 9744	·9678	•9596	• 9494	• 9367	•9210	.901

			PROBAB	LITY OF W	AIT LESS TH	AN OR EQUA	AL TO T			
T	•80	.81	•82	.83	UTILIZA •84	.85	•86	.87	•88	.89
20.00										
0.00	•9998	•9997	•9996	.9994	•9990	•9984	•9975	.9961	•9939	• 990
	•9999	•9998	•9996	.9994	•9991	9985	•9976	.9963	•9942	• 990
0.40	•9999	•9998	•9997	.9994	•9991	•9986	.9978	.9965	•9944	• 991
0.60	• 9999	•9998	•9997	•9995	•9992	.9987	•9979	•9967	.9947	• 991
0.80	•9999	•9998	•9997	•9995	•9992	•9988	•9980	.9968	•9950	• 992
1.00		•9998	•9997	•9996	.9993	.9988	•9981	•9970	•9952	. 992
1.20		•9998	•9997	•9996	•9993	•9989	•9982	•9972	•9955	• 992
1.40		•9999	•9998	•9996	•9994	•9990	•9983	•9973	.9957	• 993
1.60		•9999	•9998	•9996	•9994	•9990	• 9984	•9975	•9959	• 993
1.80		•9999	•9998	.9997	.9995	•9991	• 9985	•9976	•9961	• 993
2.00			.9998	.9997	.9995	•9992	• 9986	•9977	•9963	. 994
2 • 20			.9998	9997	9995	•9992	•9987	.9978	.9965	. 994
2 • 40			.9998	9997	9996	•9993	9988	.9980	.9966	. 994
2.60			9999	9998	.9996	9993	.9988	.9981	.9968	.994
2.80			9999	.9998	9996	•9993	• 9989	.9982	•9970	• 99
3.00			0000	2005	0001	0004	2006	0002	0071	001
3.20			•9999 •9999	•9998 •9998	•9996 •9997	•9994 •9994	•9990 •9990	•9983 •9984	•9971 •9972	• 99
3.40	I		•9999	•9998	•9997	•9995	•9991	•9984	•9974	99
3.60			9999						•9975	995
3.80			9999	•9998 •9998	•9997 •9997	•9995 •9995	•9991 •9992	•9985 •9986	•9976	• 996
				•	• > > > .					
4.00				.9998	•9997	•9995	•9992	•9987	•9977	• 996
4.20				•9999	•9998	•9996	•9993	•9987	•9979	• 996
4.40				•9999	•9998	• 9996	•9993	•9988	•9980	• 996
4.60				.9999	.9998	• 9996	.9994	.9989	•9981	•996
4.80				.9999	•9998	•9997	• 9994	•9989	•9982	• 996
5.00					•9998	.9997	.9994	•9990	•9982	• 997
5.20					.9998	.9997	.9995	.9990	•9983	. 997
5.40	ŀ				9998	.9997	9995	•9991	• 9984	.997
5.60	•				9998	.9997	9995	.9991	.9985	•997
5.80					.9999	.9997	.9995	.9992	.9986	.997
							0001	0003	2224	007
6.00					•9999	•9998	•9996	•9992	•9986	• 997
6.20					•9999	•9998	•9996	•9993	•9987	•997
6.40					•9999	•9998	• 99 96	•9993	•9988	• 997
6.60					•9999 • 999 9	•9998 •9998	• 9996 • 9997	•9993 •9994	•9988 •9989	• 997
					• • • • • • • • • • • • • • • • • • • •	•,,,,	•		• , , , ,	• //-
7.00	Ì					•9998	•9997	•9994	•9989	• 998
7.20						•9998	•9997	.9994	• 9990	• 998
7.40						• 9998	•9997	•9995	•9990	• 998
7.60						•9999 •9999	•9997 •9997	•9995 •9995	•9991 •9991	• 998
, 500						•7777	•7771	07772	• 7 7 7 1	• 798
8.00	1					•9999	•9998	•9996	•9992	• 998
8.20	ł					.9999	•9998	•9996	•9992	. 998
8.40	İ					•9999	•9998	.9996	•9993	• 998
8.60	ł					•9999	•9998	•9996	•9993	• 998
8.80	1					•9999	•9998	.9996	•9993	• 998
9.00							•9998	•9997	•9994	• 998
9.20	Ī						9998	9997	9994	998
9.40	l						9998	9997	9994	• 998
9.60	1						•9999	9997	9994	• 998
9.80	1						•9999	•9997	•9995	• 999
	l									
0.00	1						•9999	.9997	•9995	•999

10.20 10.40 10.60 10.80 11.00 11.20 11.40 11.60 11.80 12.00 12.20 12.40 12.60 12.80 13.00 13.60 13.80 13.60 13.80 14.00 14.40 14.60 14.80 15.00 15.20 15.40 15.20 15.20 15.40 15.80	.80 .9883 .9893 .9902 .9917 .9924 .9936 .9936 .9941 .9946 .9955 .9955 .9955 .9955 .9955 .9955 .9955 .9977 .9981 .9977 .9981 .9982 .9988	. 81 . 9852 . 9863 . 9874 . 9884 . 9893 . 9901 . 9909 . 9916 . 9929 . 9934 . 9940 . 9944 . 9949 . 9953 . 9966 . 9963 . 9966 . 9969 . 9971 . 9975 . 9977 . 9979	•82 •9812 •9826 •9839 •9851 •9862 •9872 •9882 •9890 •9898 •9906 •9913 •9919 •9925 •9931 •9936 •9941 •9949 •9953 •9956 •9960 •9963 •9968 •9970	.83 .9762 .9779 .9794 .9808 .9822 .9834 .9857 .9867 .9876 .9893 .9900 .9907 .9914 .9920 .9925 .9935 .9935 .9944 .9948 .9952 .9955		•85 •9621 •9644 •9666 •9686 •9706 •9724 •9757 •9772 •9786 •9799 •9811 •9823 •9834 •9844 •9853 •9862 •9871 •9879 •9886	• 86 • 9523 • 9550 • 9576 • 9600 • 9623 • 9644 • 9665 • 9684 • 9702 • 9719 • 9735 • 9750 • 9765 • 9778 • 97791 • 9803 • 9814 • 9835 • 9844 • 9853 • 9861	.87 .9400 .9432 .9462 .9491 .9518 .9568 .9568 .9591 .9612 .9633 .9652 .9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	•88 •9248 •9285 •9320 •9353 •9385 •9415 •9443 •9471 •9496 •9521 •9544 •9567 •9588 •9608 •9627 •9645 •9663 •9679 •9663 •9679 •9695 •9710	.89 .905 .910 .914 .918 .921 .925 .928 .934 .937 .9404 .9456 .9546 .9546 .9547 .9605
10.20 10.40 10.60 10.80 11.00 11.20 11.40 11.60 11.80 12.00 12.20 12.40 12.60 12.80 13.00 13.60 13.80 13.60 13.80 14.00 14.40 14.60 14.80 15.00 15.20 15.40 15.20 15.20 15.40 15.80	9893 9902 9910 9917 9924 9936 9936 9941 9951 9955 9955 9965 9965 9965 9977 9977 9977 9977 9981 9985 9985	. 9863 . 9874 . 9884 . 9893 . 9901 . 9909 . 9916 . 9923 . 9929 . 9934 . 9944 . 9949 . 9953 . 9956 . 9966 . 9966 . 9969 . 9971 . 9973 . 9975 . 9977	9826 9839 9851 9862 9872 9882 9890 9898 9906 9913 9919 9925 9931 9941 9945 9949 9953 9956 9960 9960 9965 9968	9779 97794 9808 9808 9808 9808 9808 9808 9807 9857 9867 9867 9867 9876 99893 99907 99907 99914 99925 99930 99935 99940 99944 99948 99948 99955	•9719 •9737 •9737 •9755 •9771 •9786 •9800 •9813 •9825 •9837 •9857 •9857 •9867 •9875 •9884 •9891 •9898 •9901 •9917 •9917	9644 9666 9666 9706 9724 97741 9757 97772 9786 9799 9811 9823 9834 9844 9853 9862 9871 9879 9886	.9550 .9576 .9600 .9623 .9644 .9665 .9684 .9702 .9719 .9735 .9750 .97765 .9778 .9778 .97791 .9803 .9814 .9825 .9835 .9844	.9432 .9462 .9491 .9518 .9558 .95591 .9612 .9633 .9652 .9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .97787	9285 9320 9353 9385 9415 9443 9471 9496 9521 9544 9567 9588 9608 9627 9645 9663 9679 9695 9710	910 914 918 925: 928: 931 934 937 943: 9456 948: 9506 9546 9547 9605
10.40 10.60 10.80 11.00 11.20 11.40 11.60 11.80 12.00 12.20 12.40 12.40 12.40 13.40 13.40 13.40 13.40 13.40 13.40 13.80 14.60 14.80 15.00 15.60 15.60 15.60 15.60	9902 9910 9917 9924 9930 9936 9941 9955 9955 9955 9965 9968 9971 9973 9977 9977 9977 9981 9982 9985	.9874 .9884 .9893 .9901 .9909 .9916 .9923 .9929 .9934 .9940 .9944 .9953 .9956 .9960 .9963 .9966 .9969	9839 9851 9862 9872 9882 9890 9898 9906 9913 9919 9925 9931 9936 9941 9945 9949 9953 9960 9963 9965 9968	9779 97794 9808 9808 9808 9808 9808 9808 9807 9857 9867 9867 9867 9876 99893 99907 99907 99914 99925 99930 99935 99940 99944 99948 99948 99955	•9719 •9737 •9737 •9755 •9771 •9786 •9800 •9813 •9825 •9837 •9857 •9857 •9867 •9875 •9884 •9891 •9898 •9901 •9917 •9917	9644 9666 9666 9706 9724 97741 9757 97772 9786 9799 9811 9823 9834 9844 9853 9862 9871 9879 9886	.9550 .9576 .9600 .9623 .9644 .9665 .9684 .9702 .9719 .9735 .9750 .97765 .9778 .9778 .97791 .9803 .9814 .9825 .9835 .9844	.9432 .9462 .9491 .9518 .9558 .95591 .9612 .9633 .9652 .9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .97787	9285 9320 9353 9385 9415 9443 9471 9496 9521 9544 9567 9588 9608 9627 9645 9663 9679 9695 9710	910 914 918 925: 928: 931 934 937 943: 9456 948: 9506 9546 9547 9605
10.60 10.80 11.00 11.20 11.40 11.60 11.80 12.00 12.20 12.40 12.80 13.00 13.20 13.40 13.60 13.60 13.80 14.00 14.20 14.80 14.00 14.80 15.00 15.00 15.40 15.60 15.80	9910 9917 9924 9930 9936 9941 9955 9955 9959 9968 9971 9973 9977 9977 9977 9981 9982 9984 9985	.9884 .9893 .9901 .9909 .9916 .9923 .9929 .9934 .9940 .9944 .9949 .9953 .9966 .9963 .9966 .9969 .9971 .9973 .9977	9851 9862 9872 9882 9890 9898 9906 9913 9919 9925 9931 9936 9945 9945 9945 9953 9960 9963	9794 9808 9822 9834 9846 9857 9867 9867 9867 99893 9900 9914 9925 9930 9925 9930 9935 9940	.9737 .9755 .9771 .9786 .9800 .9813 .9825 .9837 .9847 .9857 .9867 .9875 .9884 .9891 .9898 .9905 .9917 .9917	.9666 .9686 .9706 .9724 .97741 .9757 .9772 .9786 .9811 .9823 .9834 .9844 .9853 .9853 .9862 .9871 .9879 .9886	•9576 •9600 •9623 •9644 •9665 •9684 •9702 •9719 •9735 •9750 •9765 •9778 •97791 •9803 •9814 •9825 •9835 •9844 •9853 •9861	.9462 .9491 .9.518 .95568 .9591 .9612 .9633 .9652 .9688 .9705 .9720 .9735 .9749 .9775 .97787	9320 9353 9385 9415 9443 94471 9446 9521 9544 9567 9588 9608 9627 9645 9663 9679 9695 9710	914 918 925 925 928 931 934 937 940 945 945 945 950 950 950 950 950 960 960 960
10.80 11.00 11.20 11.40 11.60 11.80 12.00 12.20 12.40 12.80 12.80 13.00 13.60 13.80 14.00 14.60 14.80 15.00 15.00 15.60 15.60 15.60 15.60 15.60	9917 9924 9930 9936 9941 9946 9951 9955 9959 9962 9965 9977 9977 9977 9977 9981 9985 9985	• 9893 • 9901 • 9909 • 9916 • 9929 • 9934 • 9940 • 9944 • 9949 • 9953 • 9960 • 9963 • 9966 • 9969 • 9971 • 9973 • 9975 • 9977	.9862 .9872 .9882 .9890 .9898 .9906 .9913 .9919 .9925 .9931 .9945 .9949 .9953 .9956 .9960 .9960 .9965 .9968	9808 9822 9834 9846 9857 9867 9876 9885 99007 9914 9925 9930 9925 9930 9944 9948 9944 9948	.9755 .9771 .9786 .9800 .9813 .9825 .9837 .9857 .9867 .9867 .9867 .9875 .9884 .9891 .9991 .9917 .9917	.9686 .9706 .9724 .9741 .9757 .9772 .9786 .9799 .9811 .9823 .9834 .9844 .9853 .9862 .9871 .9879 .9886 .9879 .9886	9600 9623 9644 9665 9684 9702 9719 9735 9750 9775 9775 97778 97791 9803 9814 9825 9835 9844	.9491 .9518 .9543 .9568 .9591 .9612 .9633 .9652 .9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	9353 9385 9415 9443 9471 9496 9521 9567 9588 9608 9627 9645 9663 9679 9663 9679	918 921 925 928 931 934 937 9404 945 945 9504 9504 9505 9505
11.00 11.20 11.40 11.60 11.80 12.00 12.20 12.40 12.60 12.80 13.00 13.60 13.80 13.60 13.60 13.60 13.60 13.60 13.60 13.60 13.60 15.60 15.60 15.60 15.60 15.60 15.60 15.60 15.60	9924 9930 9936 9936 9941 9955 9955 9955 9962 9968 9971 9973 9977 9977 9977 9981 9982 9984 9985	•9901 •9909 •9916 •9923 •9929 •9934 •9940 •9944 •9953 •9956 •9960 •9963 •9966 •9969	.9872 .9882 .9890 .9898 .9906 .9913 .9919 .9925 .9931 .9945 .9945 .9949 .9953 .9956 .9960 .9963 .9965 .9968	.9834 .9846 .9857 .9867 .9876 .9885 .9900 .9914 .9925 .9930 .9935 .9944 .9948 .9948 .9955	.9771 .9786 .9800 .9813 .9825 .9837 .9857 .9857 .9867 .9875 .9884 .9891 .9898 .9905 .9917 .9923 .9928	•9706 •9724 •9741 •9757 •9772 •9786 •9799 •9811 •9823 •9834 •9844 •9853 •9862 •9871 •9879 •9886 •9893 •9900	.9623 .9644 .9665 .9684 .9702 .9719 .9735 .9750 .9765 .9778 .9791 .9803 .9814 .9825 .9835 .9844	• 9518 • 9543 • 9568 • 9591 • 9633 • 9652 • 9671 • 9688 • 97020 • 9735 • 9749 • 9763 • 9775 • 9787	• 9385 • 9415 • 9443 • 9471 • 9496 • 9521 • 9567 • 9588 • 9608 • 9627 • 9645 • 9663 • 9679 • 9695 • 9710 • 9724	921 925 928 931 937 940 943 945 945 956 956 9565 9605
11.20 11.40 11.60 11.80 12.00 12.20 12.40 12.60 12.60 13.20 13.20 13.40 13.60 14.60 15	9930 9936 9941 9946 9951 9955 9959 9965 9965 9977 9977 9977 9979 9981 9985 9985	.9909 .9916 .9923 .9929 .9934 .9940 .9944 .9953 .9956 .9960 .9963 .9966 .9969 .9971 .9973 .9975	9882 9890 9898 9906 9913 9919 9925 9931 9936 9945 9945 9945 9956 9960 9965 9968	9846 9857 9867 9876 9885 9893 9900 9907 9914 9925 9930 9935 9944 9944 9952	.9800 .9813 .9825 .9837 .9847 .9857 .9867 .9884 .9891 .9991 .9911 .9917 .9923 .9928 .9932	.9741 .9757 .9772 .9786 .9799 .9811 .9823 .9834 .9844 .9853 .9862 .9871 .9879 .9886	.9665 .9684 .9702 .9719 .9735 .9750 .9765 .9778 .9791 .9803 .9814 .9825 .9835 .9844	.9568 .9591 .9612 .9633 .9652 .9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	.9443 .9471 .9496 .9521 .9544 .9567 .9588 .96027 .9645 .9663 .9679 .9695 .9710	928 931 934 937 940 943 945 948 950 952 958 9565 9587
11.40 11.60 11.80 .12.00 .12.20 .12.40 .12.60 .12.80 .13.00 .13.60 .13.60 .13.60 .13.60 .14.00 .4.20 .4.40 .4.40 .4.40 .5.60 .5.60 .5.60 .5.60 .5.60 .5.60 .5.60 .5.60	9936 9946 9946 9955 9955 9958 9968 9971 9973 9977 9977 9981 9982 9984 9985	•9916 •9923 •9929 •9934 •9940 •9949 •9953 •9956 •9960 •9963 •9966 •9969 •9971 •9973 •9975	.9890 .9898 .9906 .9913 .9919 .9925 .9931 .9936 .9941 .9945 .9949 .9953 .9956 .9960 .9963 .9965 .9968	9846 9857 9867 9876 9885 9893 9900 9907 9914 9925 9930 9935 9944 9944 9952	.9800 .9813 .9825 .9837 .9847 .9857 .9867 .9884 .9891 .9991 .9911 .9917 .9923 .9928 .9932	.9741 .9757 .9772 .9786 .9799 .9811 .9823 .9834 .9844 .9853 .9862 .9871 .9879 .9886	.9665 .9684 .9702 .9719 .9735 .9750 .9765 .9778 .9791 .9803 .9814 .9825 .9835 .9844	.9568 .9591 .9612 .9633 .9652 .9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	.9443 .9471 .9496 .9521 .9544 .9567 .9588 .96027 .9645 .9663 .9679 .9695 .9710	928 931 934 937 940 943 945 948 950 952 958 9565 9587
11.60 11.80 12.00 12.20 12.40 12.40 12.80 13.00 13.20 13.40 13.60 13.3.80 14.00 4.20 4.40 4.60 4.40 5.60 5.60 5.60 5.80	9941 9946 9951 9955 9962 9965 9968 9971 9973 9977 9977 9979 9981 9982 9984 9985	.9923 .9929 .9934 .9940 .9944 .9953 .9956 .9960 .9963 .9966 .9969	.9898 .9906 .9913 .9919 .9925 .9936 .9945 .9945 .9949 .9953 .9956 .9960 .9963 .9968	.9857 .9867 .9885 .9893 .9900 .9907 .9914 .9925 .9930 .9935 .9940 .9944 .9948 .9948 .9955	.9813 .9825 .9837 .9847 .9857 .9867 .9875 .9884 .9898 .9905 .9911 .9917	9757 9772 9786 9799 9811 9823 9834 9844 9853 9862 9871 9879 9886	.9684 .9702 .9719 .9735 .9750 .9765 .9778 .9771 .9803 .9814 .9825 .9835 .9844	.9591 .9612 .9633 .9652 .9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	.9471 .9496 .9521 .9544 .9567 .9588 .9608 .9627 .9645 .9663 .9679 .9695 .9710	931 934 937 940 943 945 948 950 952 954 9560 9560
11.80 12.00 12.20 12.40 12.60 12.80 13.00 13.20 13.40 13.60 3.80 4.00 4.20 4.40 4.60 4.80 5.00 5.20 5.40 5.60 6.00 6.20	9946 9951 9955 9959 9962 9965 9971 9973 9977 9977 9979 9981 9981 9985 9986	.9929 .9934 .9940 .9944 .9953 .9956 .9960 .9963 .9966 .9969 .9971 .9973 .9975	• 9906 • 9913 • 9919 • 9925 • 9931 • 9936 • 9941 • 9949 • 9953 • 9956 • 9960 • 9963 • 9968	• 9876 • 9885 • 9893 • 9900 • 9907 • 9914 • 9925 • 9930 • 9935 • 9944 • 9948 • 9955	.9825 .9837 .9847 .9857 .9867 .9875 .9884 .9891 .9898 .9905 .9917 .9917 .9923 .9928	•9772 •9786 •9799 •9811 •9823 •9834 •9844 •9853 •9862 •9871 •9879 •9886	•9702 •9719 •9735 •9750 •9765 •9778 •97791 •9803 •9814 •9825 •9835 •9844	.9612 .9633 .9652 .9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	.9496 .9521 .9544 .9567 .9588 .9608 .9627 .9645 .9663 .9679 .9695 .9710	934 937 940 943 945 945 950 952 954 956 958
12.00 12.20 12.40 12.60 12.80 13.00 13.20 13.40 13.60 3.80 4.00 4.20 4.40 4.60 4.80 5.00 5.20 5.40 5.60 6.00 6.20	9951 9955 9959 9962 9965 9965 9971 9977 9977 9977 9981 9982 9984 9985	.9934 .9940 .9944 .9949 .9953 .9956 .9960 .9963 .9966 .9969	.9913 .9919 .9925 .9931 .9936 .9941 .9945 .9949 .9953 .9956 .9960 .9963 .9965	• 9885 • 9893 • 9900 • 9907 • 9914 • 9925 • 9930 • 9935 • 9940 • 9944 • 9948 • 9948 • 9955	• 9837 • 9847 • 9857 • 9867 • 9875 • 9884 • 9891 • 9905 • 9911 • 9917 • 9923 • 9932	• 9786 • 9799 • 9811 • 9823 • 9834 • 9853 • 9862 • 9871 • 9879 • 9886 • 9893 • 9900	•9719 •9735 •9750 •9765 •9778 •9791 •9803 •9814 •9825 •9835 •9844 •9853 •9861	.9633 .9652 .9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	• 9521 • 9544 • 9567 • 9588 • 96027 • 9645 • 9663 • 9679 • 9695 • 9710 • 9724	.937 .940 .943 .945 .948 .950 .952 .954 .9560 .960
2.20 2.40 2.60 2.80 3.00 3.20 3.40 3.60 3.80 4.00 4.20 4.40 4.60 4.80 5.00 5.20 5.60 5.60 6.00 6.20	9955 9959 9965 9965 9971 9973 9977 9977 9977 9981 9981 9984 9985	.9940 .9944 .9949 .9953 .9956 .9960 .9963 .9966 .9969 .9971 .9977	9919 9925 9931 9936 9941 9945 9949 9953 9956 9960 9963 9965 9968	.9893 .9900 .9907 .9914 .9920 .9925 .9930 .9935 .9940 .9944 .9948 .9955	.9857 .9867 .9875 .9884 .9898 .9905 .9911 .9917 .9923 .9928 .9932	•9811 •9823 •9834 •9844 •9853 •9862 •9871 •9879 •9886	.9750 .9765 .9778 .97791 .9803 .9814 .9825 .9835 .9844	.9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	.9567 .9588 .9608 .9627 .9645 .9663 .9679 .9695 .9710	940 943 945 948 950 952 954 958 960
12.40 12.60 13.00 13.00 13.20 13.40 13.60 13	9959 9962 9965 9968 9971 9973 9975 9977 9981 9981 9982 9984 9985	.9940 .9944 .9949 .9953 .9956 .9960 .9963 .9966 .9969 .9971 .9977	9919 9925 9931 9936 9941 9945 9949 9953 9956 9960 9963 9965 9968	.9893 .9900 .9907 .9914 .9920 .9925 .9930 .9935 .9940 .9944 .9948 .9955	.9857 .9867 .9875 .9884 .9898 .9905 .9911 .9917 .9923 .9928 .9932	•9811 •9823 •9834 •9844 •9853 •9862 •9871 •9879 •9886	.9750 .9765 .9778 .97791 .9803 .9814 .9825 .9835 .9844	.9671 .9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	.9567 .9588 .9608 .9627 .9645 .9663 .9679 .9695 .9710	943 945 948 950 952 954 956 958 960
2.60 2.80 	9962 9965 9968 9971 9973 9975 9977 9981 9981 9982 9984 9985	.9944 .9949 .9953 .9956 .9960 .9963 .9966 .9969 .9971 .9973 .9975	. 9925 . 9931 . 9936 . 9941 . 9945 . 9949 . 9953 . 9956 . 9960 . 9963 . 9968	.990C .9907 .9914 .9920 .9925 .9930 .9935 .9940 .9944 .9948 .9955	.9867 .9875 .9884 .9891 .9898 .9905 .9911 .9917 .9923 .9928	•9823 •9834 •9844 •9853 •9862 •9871 •9879 •9886	.9765 .9778 .97791 .9803 .9814 .9825 .9835 .9844	.9688 .9705 .9720 .9735 .9749 .9763 .9775 .9787	•9588 •9608 •9627 •9645 •9663 •9679 •9695 •9710	945 948 950 952 954 956 958 960
2.80 .3.00 .3.20 .3.40 .3.80 .4.00 .4.20 .4.40 .4.60 .4.80 .5.00 .5.20 .5.40 .5.60 .5.80 .6.00 .6.20	9965 9968 9971 9973 9975 9977 9981 9981 9982 9984 9985	.9953 .9956 .9960 .9963 .9966 .9969 .9971 .9973 .9975	.9931 .9936 .9941 .9945 .9949 .9953 .9956 .9960 .9963 .9965 .9968	.9907 .9914 .9920 .9925 .9935 .9940 .9944 .9948 .9952	.9875 .9884 .9891 .9898 .9905 .9911 .9917 .9923 .9928	• 9834 • 9844 • 9853 • 9862 • 9871 • 9879 • 9886	•9778 •9791 •9803 •9814 •9825 •9835 •9844 •9853 •9861	•9705 •9720 •9735 •9749 •9763 •9775 •9787	.9608 .9627 .9645 .9663 .9679 .9695 .9710	948 950 952 954 956 958 960
3.00 3.20 3.40 3.60 3.80 4.00 4.20 4.40 4.40 4.60 4.80 5.00 5.20 5.60 5.60 6.00 6.20	9968 9971 9973 9975 9977 9977 9981 9982 9984 9985	.9953 .9956 .9960 .9963 .9966 .9969 .9971 .9973 .9975	.9936 .9941 .9945 .9949 .9953 .9956 .9960 .9963 .9965	.9914 .9920 .9925 .9930 .9935 .9940 .9944 .9948 .9952	.9884 .9891 .9898 .9905 .9911 .9917 .9923 .9928	•9844 •9853 •9862 •9871 •9879 •9886 •9893 •9900	•9791 •9803 •9814 •9825 •9835 •9844 •9853 •9861	.9720 .9735 .9749 .9763 .9775 .9787	• 9627 • 9645 • 9663 • 9679 • 9695 • 9710	•950 •952 •954 •956 •958 •960
3.20 3.40 3.60 3.80 4.00 4.20 4.40 4.60 4.80 5.00 5.20 5.40 5.60 5.80	9971 9973 9975 9977 9977 9981 9982 9984 9985	.9956 .9960 .9963 .9966 .9969 .9971 .9973 .9975	•9941 •9945 •9949 •9953 •9956 •9960 •9963 •9965 •9968	.9920 .9925 .9930 .9935 .9940 .9944 .9952	.9891 .9898 .9905 .9911 .9917	•9853 •9862 •9871 •9879 •9886 •9893 •9900	•9803 •9814 •9825 •9835 •9844 •9853 •9861	•9735 •9749 •9763 •9775 •9787	• 9645 • 9663 • 9679 • 9695 • 9710	•9526 •954 •956 •958 •960
3.20 3.40 3.60 3.80 4.00 4.20 4.40 4.60 4.80 5.00 5.20 5.40 5.60 5.80	9971 9973 9975 9977 9977 9981 9982 9984 9985	.9960 .9963 .9966 .9969 .9971 .9973 .9975	.9945 .9949 .9953 .9956 .9960 .9963 .9965 .9968	.9925 .9930 .9935 .9940 .9944 .9948 .9952	.9898 .9905 .9911 .9917 .9923 .9928	•9862 •9871 •9879 •9886 •9893 •9900	•9814 •9825 •9835 •9844 •9853 •9861	•9749 •9763 •9775 •9787	•9663 •9679 •9695 •9710	•954 •956 •958 •960
3.40 3.60 3.80 4.00 4.20 4.40 4.60 4.80 5.00 5.20 5.40 5.60 6.00	9973 9975 9977 9977 9981 9982 9984 9985	.9963 .9966 .9969 .9971 .9973 .9975	•9949 •9953 •9956 •9960 •9963 •9965 •9968	•9930 •9935 •9940 •9944 •9948 •9952	.9905 .9911 .9917 .9923 .9928 .9932	•9871 •9879 •9886 •9893 •9900	• 9825 • 9835 • 9844 • 9853 • 9861	•9763 •9775 •9787	•9679 •9695 •9710	•956 •958 •960
3.60 3.80 4.00 4.20 4.40 4.60 4.80 5.00 5.20 5.40 5.60 5.80	9975 9977 9979 9981 9982 9984 9985	.9966 .9969 .9971 .9973 .9975	•9953 •9956 •9960 •9963 •9965 •9968	.9935 .9940 .9944 .9948 .9952	.9911 .9917 .9923 .9928 .9932	•9879 •9886 •9893 •9900	•9835 •9844 •9853 •9861	•9775 •9787 •9798	•9695 •9710 •9724	•958° •960!
3.80 4.00 4.20 4.40 4.60 4.80 5.00 5.20 5.40 5.60 5.80	9977 9979 9981 9982 9984 9985	•9969 •9971 •9973 •9975 •9977	•9956 •9960 •9963 •9965 •9968	•9940 •9944 •9948 •9952 •9955	•9917 •9923 •9928 •9932	•9886 •9893 •9900	•9844 •9853 •9861	•9787 •9798	•9710 •9724	•960: •962:
4.00 4.20 4.40 4.60 4.80 5.00 5.20 5.40 5.60 6.00 6.00	9979 9981 9982 9984 9985	•9971 •9973 •9975 •9977	•9960 •9963 •9965 •9968	•9944 •9948 •9952 •9955	•9 92 3 •9928 •9932	•9893 •9900	•9853 •9861	•9798	•9724	•962
4.20 4.40 4.60 4.80 5.00 5.20 5.40 5.60 5.80	9981 9982 9984 9985	•9973 •9975 •9977	•9963 •9965 •9968	•9948 •9952 •9955	•9928 •9932	•9900	•9861			
4.40 4.60 4.80 5.00 5.20 5.40 5.60 6.00	9982 9984 9985 9986	•9975 •9977	•9965 •9968	•995 2 •9955	.9932			.9809		
4.60 4.80 5.00 5.20 5.40 5.60 6.00	9984 9985 9986	•9977	•9968	•9955		•9906			•9737	.964
4 · 80 · · · · · · · · · · · · · · · · ·	9985				•9937		•9869	.9819	•9750	965
5.00 5.20 5.40 5.60 5.80	9986	•9979	•9970	0050		•9912	•9877	•9829	9762	967
5.20 5.40 5.60 5.80 6.00 6.20				•9958	•9941	•9917	•9884	.9838	•9774	9686
5.40 5.60 5.80 6.00 6.20	9988	•9981	•9973	•9961	•9945	•9922	•9891	•9846	• 9785	070
5.60 5.80 6.00 6.20		•9982	•9975	.9964	9948	•9927	•9897	9855	• 9796	• 9700
5.80 6.00 6.20	9989	•9984	•9976	9966	•9952	•9931	•9903	• 9862		•9714
6.00	9990	•9985	•9978	.9969	9955	•9936	•9908	•9870	•9806	•9726
6.20	9990	•9986	•9980	•9971	9958	•9940	•9913	•9876	•9815 •9824	•9739 •9750
6.20	9991	•9987	•9981	•9973	•9961	•9943		2200		
	9992	9988	9983	9975	•9963		•9918	• 9883	•9833	• 976
	9993	9989	9984	•9977	•9966	•9947	•9923	• 9889	•9841	•9772
6.60	9993	•9990	9985	9978	•9968	•9950 •9953	•9927	.9895	• 9849	•9782
6.80	9994	•9991	9986	9980	•9970	•9956	•9932 •9936	•9901 •9906	•9856 •9863	•97 9 2
7.00	9994	•9991	•9987	,	2272				• > 0 0 3	• 780]
	9995	9992	•9988	•9981	•9972	•9959	.9939	•9911	•9870	.9810
	9995	9993	•9989	•9982	•9974	•9961	•9943	•9916	•9876	.9819
	9996	9993	•9990	•9984	•9976	•9964	•9946	•9920	•9882	• 9827
	9996	.9994	•9991	•9985 •9986	•9977 •9 9 79	•9966 •9968	•9949 •9952	•9924	•9888	.9835
8.00	9996	0001					• 7722	•9928	•9893	•9842
	9 9 90	•9994 •9995	•9991	•9987	•9980	•9970	•9955	.9932	•9899	.9849
	9997	•9995	•9992	•9988	•9981	•9972	•9957	.9936	9904	•9856
	9997		•9993	9989	.9983	•9973	•9960	.9939	•9908	• 986 2
	9997	•9996	•9993	• 9989	•9984	•9975	•9962	•9942	•9913	.9868
	,,,,	•9996	•9994	•9990	•9985	• 9977	•9964	•9945	•9917	.9874
	9998	•9996	•9994	•9991	•9986	•9978	•9966	•9948	•9921	•9880
	9998	•9997	•9995	•9991	.9987	.9979	•9968	•9951	9925	•9885
	9998	•9997	•9995	•9992	.9988	•9981	•9970	9954	•9929	•9890
	9998	•9997	•9995	•9993	.9988	9982	•9972	9956	•9929	_
9 80 9	9998	•9997	•9996	•9993	.9989	•9983	9973	9958	•9935	•9895 •9900

T	1				UTILIZ	ATTON				
	•90	•91	•92	•93	•94	•95	•96	• 97	• 98	• 99
•00	•1000	•0900	•0800	•0700	•0600	25.00				
• 20	•1197	•1080	• 0962	•0843	•0724	•0500	•0400	•0300	•0200	•010
•40	•1433	•1295	•1156	•1015	.0874	•0605 •0731	•0485	•0364	•0243	•012
•60	•1716	•1554	•1389	•1223	•1055	•0884	•0587	• 0442	•0296	•01
•80	• 2054	•1864	•1670	.1473	.1273	•1069	•0712 •0862	•0537 •0652	.0360 .0438	•01
1.00	• 2460	•2236	•2007						•0.30	•02.
1.20	• 2729	•2486	•2236	•1774 •1980	•1536	•1293	•1045	• 0791	.0533	.026
1.40	• 3009	• 2746	2475		•1718	•1449	•1173	•0890	•0601	•03
1.60	• 3294	•3012	2719	•2196	•1909	•1613	•1308	• 0995	•0673	• 03
1.80	• 3574	• 3274		• 2417	• 21 05	•1782	.1449	•1104	.0748	.03
		03214	•2961	• 2637	•2301	•1952	•1590	•1214	.0824	.04
2.00	•3836	•3520	•3190	•2847	•248B	•2115	•1725	•1320	•0898	0/1
2.20	•4082	•3752	• 3407	•3046	• 2667	•2271	•1857			• 04
2.40	• 4322	•3980	•3621	.3242	• 2845	2427	•1988	•1423	•0970	• 04
2.60	• 4554	•4201	•3828	.3434	• 3019	• 2580	•2117	•1526	•1042	05:
2.80	• 4775	•4413	• 4028	.3620	•3188	•2730	•2244	•1629 •1730	•1114 •1186	• 05°
3.00	•4987	•4616	•4221					•1.30	•1100	•000
3.20	•5190	•4812	• 4 2 2 1 • 4 4 0 8	•3800 •3975	•3352	•2876	•2369	•1829	•1256	• 064
3.40	•5385	•5001	• 4589	•4146	•3513	•3019	•2491	•1928	•1326	• 068
3.60	• 5573	•5184	•4764	•4312	• 3670	•3160	• 2612	•2025	•1396	• 072
3.80	•5752	•5359	•4934		•3824	•3298	• 2731	•2121	•1465	.075
		• 232)	• 4 7 3 4	• 4472	•3973	•3433	•2848	•2216	•1533	.079
4.00	•5925	•5529	•5098	•4629	•4119	•3565	•2963	•2310	-1401	000
4.20	• 6090	•5692	•5256	.4781	.4261	• 3694	• 3076	•2403	•1601	• 083
4.40	•6249	5849	•5410	• 4928	.4400	•3821	•3188	• 2494	•1669	• 087
4.60	•6401	•6000	•5558	•5072	4536	•3946	• 3297	• 25 85	•1735	• 090
4.80	• 6547	•6146	•5702	•5211	•4668	•4068	• 3405	• 2674	•1802 •1868	•094 •097
5.00	•6687	•6287	•5841					•=• .	•1008	•071
5.20	•6822	•6422		•5346	•4797	•4187	• 3511	•2762	•1933	•101
5.40	•6951	•6552	•5976	•5478	•4923	•4304	•3616	• 2849	•1997	•105
5.60	•7074		•6106	•5606	•5046	•4419	•3718	•2936	•2062	•108
5.80	•7193	•6678	.6232	•5730	•5166	•4531	.3819	•3021	•2125	•112
1.00	• / 193	•6799	•6354	•5851	•5283	•4642	•3919	•3105	•2189	•115
6.00	•7307	•6916	•6472	•5968	•5397	•4749	•4017	21.00	225.	
6.20	• 7416	• 7029	•6586	•6082	•5508	4855		•3188	•2251	• 119
6.40	• 75 21	•7137	•6697	•6193	•5617	• 4959	•4113 •4208	•3270	•2313	•122
6.60	•7622	•7241	.6804	•6301	•5723	•5060	•4208	•3351	•2375	• 126
6.80	•7718	• 7342	•6907	•6405	•5827	•5160	•4393	•3431 •3510	•2436 •2497	•129 •133
7.00	•7811	• 7439	7.007					• 3310	• 2 4 7 1	•133
7.20	• 7900	• 7532	•7007	•6507	•5928	•5257	•4483	•3588	• 2557	•136
7.40	• 7985	• 7622	•7104	•6606	•6026	•5353	• 4571	•3666	•2617	•140
7.60	•8067	• 7709	•7198	•6702	•6122	•5446	4659	.3742	.2676	•143
7.80	• 8145	•7793	•7289 •7376	•6795	•6216	•5538	• 4745	•3817	.2735	•147
	• 01 45	• (175	• 1316	•6886	•6308	•5628	•4829	•3892	•2793	•150
00.9	• 8220	•7873	•7461	•6974	•6397	•5716	•4913	•3966	205-	_
8 • 20	8293	• 7951	•7543	•7059	•6484	•5802	•4994		•2851	•154
8 • 40	8362	.8025	•7623	•7142	•6569	•5887	•5075	•4038	•2908	•157
8.60	•8428	•8097	.7700	•7223	•6652	•5970	•5154	•4110	•2965	• 16C
8.80	•8492	•8167	•7774	•7302	•6733	•6051	•5232	•4181 •4251	•3021 •3077	•164 •167
9.00	• 8553	•8234	•7846	72					-5011	•10/
9.20	•8612	•8298	• 7846 • 7916	•7378	•6812	•6130	•5309	•4320	•3133	•170
9.40	•8668	•8360		• 7452	•6890	•6208	•5384	• 4389	•3188	•174
9.60	.8722	_	• 7983	•7524	•6965	•6285	•5459	• 4456	• 3243	•177
9.80	.8774	•8420 8477	.8049	.7594	•7038	•6359	•5532	.4523	•3297	•180
• 00	00114	8477	•8112	• 7662	•7110	•6433	• 5603	• 4589	•3351	•184

Ť	UTILIZATION												
	•90	•91	• 92	•93	•94	• 95	•96	•97	• 98	• 99			
0.00	.8824	•8533	.8173	•7728	•7180	•6505	•5674	•4654	.3404	•187			
0.20	.8872	.8587	.8232	•7793	•7248	.6575	.5744	.4719	.3457	•190			
0.40	.8918	.8638	.8289	.7855	.7315	.6644	.5812	.4783	.3509	•193			
0.60	.8961	.8688	.8345	.7916	7380	.6712	•5880	4845	•3561	•197			
10.80	• 90 04	.8736	.8398	.7975	.7443	•6778	•5946	4907	.3613	200			
1 00	•9044	0700	2452	4					2444				
1.00	•9083	•8782 •8826	•8450 •8500	.8032 .8088	•7505 •7565	•6843 •6906	•6011 •6075	•4969 •5029	•3664 •3715	• 203 • 206			
1.40	•9120	•88 69	.8549			•6969	•6138	•5089	3766	.209			
1.60	•9156	.8910		•8142 8104	•7624			•5149	•3816	•213			
11.80	•9190		.8596	•8194	• 7682	•7030	•6201		•3865				
11.80	•9190	•8950	•8641	•8245	•7738	•7089	•6262	•5207	• 2862	•216			
L2.00	•9223	•8988	.8685	.8295	•7793	•7148	.6322	•5265	•3914	• 219			
2.20	•9254	•9025	.8728	.8343	.7846	• 7206	.6381	•5322	•3963	• 222			
2.40	• 9285	• 9061	.8769	.8390	.7898	•7262	.6439	•5378	•4012	• 225			
2.60	• 93 14	• 9095	.8809	.8435	.7949	•7317	.6497	.5434	.4060	• 228			
2.80	•9342	•9128	.8847	.8480	.7999	•7371	.6553	.5489	•4107	•231			
3 00	02/0	01/0	0.000	0.5.22	0017	7/ 5/		5510	4155	224			
13.00 13.20	•9368 •9394	●9160 ●9190	•8885 •8921	•8523 •8564	•8047 •8094	•7424 •7476	•6608 •6663	•5543 •5597	•4155 •4202	• 234 • 237			
3.40	•9419	•9220	.8956	.8605	.8141	• 7527	•6717	•5650	•4248	• 240			
3.60	• 9442	•9248	·8990	.8644	•8186	• 7576	•6769	•5702	•4294	• 243			
3.80	•9465	•9276	•9022	.8683	.8230	•7625	•6821	•5754	•4340	• 246			
4.00	•9486	•9302	•9054	.8720	.8272	•7673	•6873	•5805	•4385	• 250			
4.20	• 95 07	• 9328	.9084	.8756	.8314	•7720	•6923	•5856	• 4430	• 253			
4.40	• 9527	•9352	•9114	.8791	8355	•7766	•6972	•5906	• 4475	• 256			
4.60	9547	•9376	•9143	.8826	•8395	•7811		•5955	•4519				
4.80	•9565	•9399	•9171	•885 9	.8434	•7855	•7021 •7069	•6004	•4563	•258 •261			
0							*	• 5 5 5 1					
5.00	⇒9583	•9420	•9197	.8891	.8472	• 7898	•7116	•6052	•4607	• 264			
5.20	•9600	• 9442	•9223	.8922	• 850 9	•7940	•7163	•6100	• 4650	• 267			
5.40	•9616	• 9462	•9248	.8953	8545	• 7 9 82	•7208	•6147	•4693	• 270			
5.60	• 9631	• 948 2	•9273	.8983	•8580	8023	•7253	•6193	•4736	• 273			
.5.80	• 96 46	• 9500	•9296	•9011	.8614	•8062	•7297	.6239	•4778	• 276			
6.00	•9661	•9519	•9319	•9039	.8648	•8101	•7341	(284	4.000	270			
6.20	•9674	•9536	•9341					•6284	•4820	• 279			
6.40	•9688	• 9553	•9362	•9066	.8681	•8140	•7384	•6329	•4861	• 282			
6.60	• 9700	• 9569		•9093	•8712	•8177	•7426	•6373	•4903	• 285			
6.80	9712	• 9585	•9383 •9403	•9118 •9143	.8744	•8214	• 7467	•6417	.4943	• 288			
.0.00		• 7303	• 7403	• 9143	.8774	•8250	•7508	•6460	•4984	• 290			
7.00	•9724	• 9600	•9422	•9168	.8804	.8285	•7548	•6503	•5024	• 293			
7.20	• 9735	• 9615	•9441	•9191	.8833	.8320	•7587	.6545	•5064	• 296			
17•40	• 9746	•9629	•9459	•9214	.8861	.8353	.7626	•6587	•5104	• 299			
7.60	• 9756	.9642	•9477	.9236	.8888	.8387	.7664	•6628	•5143	.302			
.7.80	•9766	• 9655	•9494	•9258	.8915	.8419	.7702	.6668	•5182	• 305			
8.00	•9776	• 9668	•9510	•9279	.8942	•8451	•7739	4700	E 2 2 2				
8.20	•9785	•9680	•9526	9299	8967	•8482	•7775	•6708	•5221	• 307			
18.40	9794	• 9692	•9541	•9319				•6748	•5259	•310			
8.60	•9802	•9703	• 9556		·8992	•8513	•7811	•6787	•5297	•313			
				•9338	•9017	•8543	•7846	•6826	•5335	•316			
L8•80	•9810	•9714	•9570	•9357	•9040	•8572	•7881	•6864	•5372	•318			
9.00	•9818	•9724	•9584	•9375	•9064	.8601	•7915	•6902	•5409	•321			
19.20	•9825	• 9734	•9598	•9393	•9086	.8629	• 7949	.6939	•5446	•324			
19.40	•9832	.9744	•9611	.9410	•9108	•8657	.7982	•6976	-5483	.327			
19.60	• 9839	.9753	.9623	.9427	•9130	.8684	.8014	•7013	•5519	• 329			
9.80	. 9846	•9762	•9636	9443	•9151	•8710	.8046						
	- 2040		• >0.00	• / ** *	■ 2 T 2 T	• 6 / 1 0	• 0U40	•7049	• 5555	• 3 3 2			

Ť					UTILIZ	ATTON				
	•90	• 91	• 92	.93	•94	• 95	• 96	•97	. 98	. 99
20.00	• 9852	•9771	0447							
20.20	9858	9779	•9647 •9659	.9459	•9172	•8736	.8077	.7084	•5591	•335
20.40	. 9864	.9787	•9670	.9474	•9192	.8762	.8108	.7119	.5626	•337
2.0 . 60	• 9869	9795		.9489	.9211	.8787	.8139	.7154	•5661	.340
20.80	.9874	•9803	•9681	• 9503	•9230	.8811	.8169	.7188	•5696	.343
	0,014	• 7003	•9691	•9517	•9249	.8835	.8198	•7222	.5730	.345
21.00	• 9880	.9810	•9701	.9531	•9267	.8858	0007		are tre	
21.20	- 9884	•9317	.9711	.9544	9285	•8881	•8227 •8256	• 72 56	•5765	.348
21.40	• 9889	•9823	.9720	.9557	•9302	.8904	.8284	• 7289	•5799	• 350
21.60	•9894	•9830	•9729	.9570	•9319	.8926	•8311	•7321	-5832	• 353
21.80	• 9898	•9836	.9738	.9582	•9336	•8948	•8339	•7354 •7386	•5866 •5899	•356 •358
22.00	•9902	•9842						• 1300	12077	• 5 5 6
22.20	9906	•9848	•9746	•9594	• 9352	.8969	.8365	•7417	•5932	• 361
22.40	•9910	•9853	.9754	.9605	• 9367	8990	.8392	.7448	.5964	•363
22.60	9914	•9859	•9762	•9616	•9383	•9010	.8418	.7479	.5997	• 366
22.80	9917		•9770	.9627	• 9398	•9030	.8443	.7509	.6029	•368
	. 7771	•9864	•9778	•9638	• 9412	•9049	.8468	• 7539	•6061	•371
3.00	•9920	• 9869	•9785	.9648	• 9426	•9069	•8493	75.40		
23.20	•9924	•9874	•9792	.9658	. 9440	9087	.8517	• 7569	•6092	• 373
23.40	• 9927	•9878	•9798	.9668	.9454	•9106	•8541	• 7598	•6124	• 376
23.60	•9930	.9883	.9805	.9677	.9467	•9124	•8564	• 7627	•6155	• 378
23.80	•9933	•9887	.9811	.9686	9480	•9141	•8587	∙7656 •7684	•6186 •6216	•381
4.00	•9935					-,-,-	•050,	• /004	•0216	• 383
4.20	9938	•9891	•9817	.9695	• 9492	•9159	.8610	•7712	.6247	• 386
4.40		•9895	.9823	•9704	• 9505	•9176	.8632	.7740	•6277	• 388
4.60	•9940	•9899	•9829	•9712	. 9517	•9192	.8654	.7767	.6307	• 391
	•9943	•9903	•9835	•9720	•9528	•9208	.8676	.7794	•6336	•393
4.80	• 9945	•9906	•9840	•9728	. 9540	.9224	.8697	. 7820	•6366	• 396
5.00	•9947	•9910	.9845	• 9736	0551					-370.
5.20	•9950	•9913	•9850		•9551	•9240	.8718	• 7847	•6395	• 3985
5.40	•9952	•9916	9855	•9743	• 9562	•9255	•8739	•7872	•6424	• 4009
5.60	• 9954	•9919		•9750	• 95 72	•9270	.8759	•7898	.6452	•4033
5.80	.9955	•9922	•9860 •9864	•9758 •9764	•9583 •9593	•9285	•8779	• 7923	.6481	.4057
		_	4,004	. 7704	• 9393	•9299	·8799	•7948	•6509	•4081
6.00	• 9957	•9925	•9869	•9771	•9603	•9314	.8818	• 7973	•6537	• 4105
6.20	• 9959	•9928	•9873	.9778	.9612	.9327	.8837	•7998	•6565	
6.40	• 9961	•9930	•9877	•9784	.9622	9341	.8856	.8022		•4128
6.60	• 9962	•9933	.9881	.9790	•9631	.9354	.8874	.8046	•6592	•4152
6.80	• 9964	•9935	.9885	.9796	.9640	•9367	.8892	•8069	•6620 •6647	•4175 •4199
7.00	• 9965	•9938	0000		1.07				*004,	• 7177
7.20	• 9967	•9940	•9889	• 9802	• 9649	•9380	•8910	.8092	.6674	. 4222
7.40	• 9968	•9940	•9892	•9807	•9657	.9392	.8928	.8115	•6700	. 4245
7.60	• 9969	9944	•9896	•9813	•9665	.9405	.8945	.8138	.6727	•4268
7.80	•9971	9946	•9899	.9818	•9673	.9417	.8962	.8161	.6753	•4291
	• > > 1.2	• 7 7 70	•9902	.9823	•9681	•9428	.8979	.8183	•6779	.4314
B.00	• 9972	•9948	.9905	.9828	.9689	.9440	.8995	. 8205		
8.20	• 99 73	•9950	.9908	.9833	•9697	9451	•9011	·8205	•6805	• 4337
8.40	• 9974	.9952	•9911	.9838	.9704	.9462		.8226	.6831	•4359
B.60	• 9975	.9954	.9914	.9842	.9711	9473	•9027	.8248	•6856	•4382
8.80	• 9976	•9955	•9917	.9847	9718	.9484	•9043 •9058	•8269 •8290	•6881 •6906	•4404
9.00	•9977	0057	000-					10270	•0700	•4427
9.20	• 9978	•9957 •9959	•9920	•9851	•9725	.9494	•9073	.8310	•6931	. 4449
9.40	• 9979		•9922	.9855	• 9732	.9504	.9088	.8331	•6956	• 4471
9.60	• 9980	•9960	•9925	.9859	•9738	.9514	.9103	.8351	•6980	.4494
9.80		•9962	•9927	.9863	.9744	.9524	.9117	.8371	•7004	•4516
	• 9981	•9963	•9930	.9867	.9751	.9534	•9132	.8390	•7028	•4516

T					UTILIZ	ATION				
	•90	•91	• 92	•93	.94	•95	•96	•97	•98	•9
30.00	•9981	.9964	•9932	•9871	•9757	•9543	0144	24.5		
30.20	•9982	•9966	.9934	•9875	9763	•9552	•9146	.8410	• 7052	•45
30.40	• 9983	•9967	.9936	•9878	•9768		•9159	.8429	•707 6	. 45
30.60	• 9984	.9968	• 9938	•9882	•9774	•9561	•9173	.8448	•7099	• 46
30.80	•9984	•9969	.9940	•9885	•9779	•9570 •9579	•9186 •9199	•8466 •8485	•7123 •7146	•46
31.00	•9985	0070		0.000			•,1,,	•0405	• 1140	•46
31.20	9985	•9970 •9971	• 9942	•9888	•9785	•9587	•9212	•8503	•7169	•46
31.40	•9986		•9944	•9891	•9790	•9596	•9225	•8521	•7191	• 46
31.60	•9987	•9972	•9946	•9894	•9795	•9604	•9237	.8539	.7214	•47
31.80		•9973	• 9948	•9897	•9800	•9612	.9250	•8557	•7236	•47
31.60	•9987	•9974	•9949	•9900	•9805	•9619	•9262	.8574	•7258	.47
32.00	•9988	•9975	•9951	•9903	•9810	0427	0070	05.01		
32.20	• 9988	•9976	•9953	•9906		•9627	•9273	.8591	•7280	•47
32.40	• 9989	•9977	•9954		.9814	•9635	•9285	•8 6 08	•7302	• 47
32.60	• 9989	•9978	•9956	•9909	• 9819	• 9642	• 9 297	•8625 ·	•7324	•48
32.80	•9990	•9979		•9911	•9823	• 9649	•9308	.8641	•7345	• 48
		• 97 19	• 9 957	•9914	•9827	• 96 56	•9319	•8658	•7367	• 48
33.00	•9990	•9980	•9958	•9916	•9831	•9663	•9330	.8674	•7388	4.0
33.20	• 9990	•9980	•9960	.9918	• 9836	•9670	•9341	•86 90		•48
33.40	•9991	•9981	•9961	.9921	•9840	•9677			• 7409	•48
33.60	•9991	•9982	9962	9923	•9843	•9683	•9351	.8706	• 7429	•49
33.80	• 9992	•9982	.9964	•9925	•9847	•9690	•9362 •9372	•8721 •8737	•7450 •7470	•49
34.00	•9992	0.22				2,0,0	4 7372	•6131	• 1410	•49
34.20	•9992	•9983	• 9 965	•9927	-9851	• 9696	•9382	.8752	•7491	•49
34.40	9992	•9984	• 9 966	•9929	• 9855	• 9702	•9392	.8767	•7511	.49
4.60		•9984	•9967	• 9 931	• 98 5 8	•9708	•9402	.8782	•7531	•50
34.80	• 9993	•9985	•9968	•9933	•9861	•9714	.9412	.8797	•7551	.50
****	•9993	•9985	•9969	•9935	•9865	•9720	•9421	.8811	• 75 70	•50
5.00	• 9993	•9986	•9970	•9937	• 9868	•9725	04.00			
5.20	•9994	•9986	•9971	•9939	•9871		•9430	.8825	•7590	•50
5.40	•9994	•9987	•9972	•9941		•9731	•9440	•8840	•7609	•50
5.60	•9994	•9987	•9973		•9874	•9736	•9449	.8854	•7628	•51
5.80	•9994	•9988	•9974	•9942 •9944	•9877 • 9 880	•9741	•9457	•8867	•7647	•513
	=0-		• > > 1 - 4	• > > 4 4	• 90 00	• 9747	• 9466	·88 81	•7666	•515
6.00	• 9995	•9988	•9975	.9945	.9883	•9752	•9475	.8894	•7685	•51
6.20	•9995	•9989	•9975	•9947	.9886	•9757	.9483	•8908	•7704	
6.40	• 9995	•9989	•9976	•9948	•9889	•9762	•9492	•8921		•519
6.60	• 9995	•9990	•9977	•9950	9892	•9766	•9500	.8934	•7722	•521
6.80	•9995	•9990	•9978	•9951	.9894	•9771	•9508	•8947	∙7740 •7758	•523
7.00	• 9996	•9990	0.07.0					•0,4.	•1176	•525
7.20	•9996	•9991	•9978	•9953	•9897	•9776	•9516	·8959	•7776	•527
7.40	• 9996	•9991	•9979	•9954	•9899	•9780	•9523	.8972	•7794	•529
7.60	•9996	•9991	•9980	•9955	•9 9 02	•9785	•9531	.8984	•7812	•531
7.80	•9996	•9992	•9981	•9957	•9 9 04	•9789	•9539	.8997	• 7829	•532
. • • • •	• , , , , ,	•9792	•9 9 81	•9958	•9906	•97 93	•9546	•9009	•7847	•534
8.00	•9996	•9992	•9982	•995 9	•9909	•9797	•9553	0003		
8.20	•9997	•9992	•9982	•9960	•9911	•9802		•9021	• 7864	• 536
8 • 40	•9997	•9992	•9983	•9961	•9913	•9802 •9806	•9561	•9032	•7881	•538
8.60	•9997	•9993	.9983	•9962	•9915		• 9568	• 9044	• 78 98	•540
8.80	• 9997	.9993	.9984	•9963	•9917	•9809	•9575	•9056	•7915	•542
				• , , , ,	♥ / ₹ L I	•9813	•9581	•9067	•7932	•544
9.00	•9997	•9993	•9985	•9965	•9919	•9817	•9588	•9078	•7948	
9.20	•9997	•9994	•9985	•9966	•9921	•9821	•9595	•9089		•545
9.40	•9 9 97	•9994	•9986	•9966	9923	•9824	•9601		• 7965	• 547
9.60	• 9 9 9 7	.9994	·9986	•9967	9925	•9828		•9100	• 7981	•549
9.80	• 9998	•9994	•9986	•9968	•9927	•9831	•9608	•9111	•7997	551
					· // L /	• 70 <i>5</i> l	•9614	•9122	.8013	•553

	PROBABILITY OF WAIT LESS THAN OR EQUAL TO T											
T					UTILIZ	ATION						
	•90	•91	•92	•93	•94	• 95	• 96	•97	•98	•99		
40.00	• 9998	•9994	•9987	•9969	9929	•9835	•9620	0122	0020			
40.20	• 9998	9995	•9987	•9970	•9930	•9838	•9626	•9132	.8029	• 554		
40.40	• 9998	•9995	.9988	• 9971	•9932	•9841		•9143	8045	• 55 6		
40.60	• 9998	9995	9988	9972	• 9934		•9632	•9153	.8061	• 558		
40.80	• 9998	•9995	•9988	•9973	• 9935	•98 45 •9848	•9638 •9644	•9163 •9174	·8076	• 560		
41.00	0000	755			.,,,,,	• 70 40	• > 0 • •	•71/4	•8092	• 562		
41.20	• 9998 • 9998	•9995 •9996	•9989	• 9973	•9937	•9851	•9650	•9183	.8107	.563		
41.40	• 9998		•9989	• 9974	• 9938	•9854	•9655	•9193	.8122	. 565		
41.60	•9998	• 9996	•9990	9975	•9940	•9857	•9661	•9203	.8137	.567		
41.80		•9996	•9990	9976	•9941	•9860	•9666	•9213	.8152	•568		
*1 • 80	•9998	•9996	•9990	•9976	•9943	•9862	•9672	•9222	.8167	.570		
2.00	• 9998	• 9996	•9991	•9977	•9944	•9865	0477		144			
2.20	• 9999	9996	9991	9978	•9945		•9677	•9232	•8182	• 572		
2.40	• 9999	9996	9991	•9978	•9947	•9868	•9682	•9241	8196	• 574		
42.60	• 9999	•9997	•9991	•9979	•9948	•9871 •9873	•9687	•9250	.8211	• 575		
2.80	• 9999	•9997	•9992	•9979	•9948		•9692	• 9259	8225	•577		
- 1 - 1	• , , , ,	• 9 9 9 1	• 7772	• 9979	•9949	•9876	•9697	•9268	.8240	•579		
3.00	• 9999	.9997	.9992	•9980	• 9950	•9878	•9702	•9277	.8254	•580		
3.20	• 9999	•9997	•9992	•9981	•9952	.9881	•9707	•9285	•8268	•582		
3.40	• 9999	.9997	.9992	9981	.9953	.9883	•9712	•9294				
3.60	• 9999	•9997	. 9993	•9982	•9954	•9885	•9716	9303	•8282	-584		
3.30	• 9999	•9997	.7993	•9982	9955	•9888	•9721	•9311	•8295 •8309	•585 •587		
4.00								• > > 1.	•0307	•) 0 /		
4.20		•9997 •9997	•9993 •9993	•9983	• 9956	•989¢	•9725	•9319	.8323	•589		
4.4C		•9998		•9983	•9957	•9892	•9730	•9327	.8336	•590		
4.60			• 9994	•9984	•9958	•9894	•9734	•9336	.8349	•592		
4.80		• 9998	.9994	•9984	• 9959	•9897	•9738	•9344	.8363	•594		
		•9998	•9994	•9985	•9960	•9899	•9743	•9351	.8376	•595		
5.00		•9998	9994	•9985	•9961	•9901	•9747	0250				
5 • 20		•9998	9994	9985	•9962	•9903		•9359	.8389	•597		
5 . 40		•9998	9995	9986	•9963		•9751	•9367	•8402	•599		
5.60		9998	9995	•9986		•9905	•9755	•9375	•8415	•600		
5.80		9998	9995	•9987	• 9964 • 9965	•9907 •9908	• 9759 • 9763	•9382 •9390	.8427	-602		
					• ; , 0 5	• > > 0 0	• 5 / 6 5	• 9390	•8440	•603		
6.00		•9998	•9995	•9987	• 9966	•9910	•9767	•9397	·8452	•605		
		• 9998	• 9995	• 9987	•9967	•9912	•9770	.9404	.8465	•606		
6.40		• 9998	•9995	•9988	•9967	•9914	•9774	•9411	.8477	-608		
6.60		• 9998	•9996	•9988	•9968	•9916	•9778	•9419	.8489	-610		
6.80		•9998	•9996	•9988	•9969	•9917	•9781	• 9426	.8501	•611		
7.00		•9998	•9996	•9989	•9970							
7.20		9999	•9996	•9989		•9919	•9785	•9432	•8513	•613		
7.40		•9999	•9996		•9970	•9921	•9788	.9439	•8525	-614		
7.60		•9999	•9996	•9989	• 9971	•9922	•9792	•9446	.8537	•616		
7.80		•9999	•9996	•9990 •9990	• 9972	•9924	• 9795	• 9453	.8549	•617		
ŀ		• , , , ,	• 7 7 7 6	• 9 9 9 0	• 9973	•9925	•9798	•9459	•8561	•619		
6.00		•9999	•9996	•9990	.9973	• 9927	• 9802	•9466	•8572	•620		
8 • 20		•9999	•9997	•9991	•9974	•9928	•9805	•9472	·8584			
8.40		•9999	•9997	•9991	.9974	9930	•9808	9479	•8595	• 622		
8.60		• 9999	•9997	•9991	•9975	•9931	•9811	9485		• 623		
8 • 80		•9999	•9997	•9991	•9976	•9932	•9814	• 94 91	•8606 •8617	•625 •626		
9.00			•9997	0005	0.5-1					• 0 2 0		
9.20				•9992	• 9976	•9934	•9817	• 94 9 7	.8628	•628		
9.40			•9997	•9992	•9 97 7	•9935	•9820	•9503	.8639	•629		
			•9997	•9992	• 9977	•9936	•9823	•9509	.8650	•631		
9.60			•9997	•9992	• 9978	.9938	•9826	•9515	.8661	•6329		
9.80			•9997	•9992	•9978	•9939	•9828	•9521	•8672	•634		
0.00			•9997	•9993	0070	0014						
0.00			• 777 1	• 777 <i>3</i>	• 9979	•9940	• 9831	• 95 27	.8683	•635		

BASIC DISTRIBUTION LIST FOR UNCLASSIFIED TECHNICAL REPORTS

Head, Logistics and Mathematical Statistics Branch Office of Naval Research Washington 25, D. C.

C. O., ONR Office Navy No. 100, Box 39, F. P. O. New York, New York

ASTIA Document Service Center Building No. 5 Cameron Station Alexandra, Virginia

Institute for Defense Analyses Communications Research Division von Neumann Hall Princeton, New Jersey

Technical Information Officer Naval Research Laboratory Washington 25, D. C.

C. O., ONR Branch Office 1030 East Green Street Pasadena l, California ATTN: Dr. A. R. Laufer

Bureau of Supplies and Accounts Code OW, Department of the Navy Washington 25, D. C.

Professor Russell Ackoff Operations Research Group Case Institute of Technology Cleveland 6, Ohio

Professor Kenneth J. Arrow Serra House, Stanford University Stanford, California

Professor G. L. Bach Carnegie Institute of Technology Planning and Control of Industrial Operations, Schenley Park Pittsburgh, 13, Pennsylvania Professor L. W. Cohen Mathematics Department University of Maryland College Park, Maryland

Professor Donald Eckman Director, Systems Research Center Case Institute of Technology Cleveland, Ohio

Professor Lawrence E. Fouraker Graduate School of Business Harvard University Cambridge, Massachusetts

Professor David Gale
Department of Mathematics
Brown University
Providence 12, Rhode Island

Dr. Murray Geisler The RAND Corporation 1700 Main Street Santa Monica, California

Professor L. Hurwicz School of Business Administration University of Minnesota Minneapolis 14, Minnesota

Dr. James R. Jackson, Director Western Management Sciences Institute University of California Los Angeles 24, California

Professor Samuel Karlin Mathematics Department Stanford University Stanford, California

Professor C. E. Lemke Department of Mathematics Rensselaer Polytechnic Institute Troy, New York

Professor W. H. Marlow Logistics Research Project The George Washington University 707 - 22nd Street, N. W. Washington 7, C. D.

BASIC DISTRIBUTION LIST FOR UNCLASSIFIED TECHNICAL REPORTS

Professor A. Charnes The Technological Institute Northwestern University Evanston, Illinois

Professor R. Radner Department of Economics University of California Berkeley 4, California

Professor Murray Rosenblatt Department of Mathematics Brown University Providence 12, Rhode Island

Mr. J. R. Simpson Bureau of Supplies and Accounts Navy Department (Code W31) Washington 25, D. C.

Professor A. W. Tucker Department of Mathematics Princeton University Princeton, New Jersey

Professor J. Wolfowitz Department of Mathematics Lincoln Hall, Cornell University Ithaca l, New York

C. O., ONR Branch Office 346 Broadway New York 13, New York ATIN: J. Laderman

Professor Oskar Morgenstern Economics Research Project Princeton University 92 A Nassau Street Princeton, New Jersey

